307. Lewis (G. M.), Hopper (Mary E.), Wilson (J. W.), & Plunkett (O. A.). **An introduction to medical mycology.**—Fourth Edition.—xvii+453 pp., 2 col. pl., 118 fig., Chicago, The Year Book Publishers Inc., 1958. £5. 15*s*.

The present edition of this valuable textbook [cf. **1**, No. 419] has been almost completely rewritten and the matter rearranged so that both clinical and laboratory aspects of each disease are dealt with together. The diseases are broadly grouped as superficial and deep-seated. There are sections on immunology and allergic reactions in both groups. The work concludes with short chapters on workmen's compensation, elementary mycology, methods of diagnosis, laboratory methods, and contaminants. Of the two new authors J. W. Wilson was especially concerned with the deep mycoses and O. A. Plunkett with the section on contaminants.

308. Vanbreuseghem (R.). **Mycoses of Man and Animals.**—xi+235 pp., 48 fig., London, Sir Isaac Pitman & Sons Ltd., 1958. 50*s*.

This well-produced book is the authorized English translation, by J. Wilkinson, of the last part of the 2nd Edition of the well-known *Précis de Mycologie* by Langeron & Vanbreuseghem [**1**, No. 2367].

309. Wilson (J. W.). **Clinical and immunological aspects of fungous disease.**—xix+280 pp., Springfield, Illinois, U.S.A., Charles C. Thomas, 1957. £2. 11*s*.

The first 7 chapters (pp. 1–76) are devoted to a general review of the clinical, serological, and epidemiological aspects of coccidioidomycosis (*Coccidioides immitis*). Sporotrichosis, North American blastomycosis, histoplasmosis, cryptococcosis, and South American blastomycosis are then dealt with more briefly and contrasted with coccidioidomycosis. Among the many comparisons and speculations made the importance of the portal of entry—whether lungs or skin—on the clinical picture is emphasized, e.g. the rare primary skin infection by *C. immitis* in many ways resembles typical sporotrichosis, while the rare pulmonary infection by *S. schenckii* resembles disseminated coccidioidomycosis. The remaining chapters deal more briefly with actinomycosis and the dermatophytes; in conclusion there is a 26-page bibliography and an index.

310. Seeliger (H. P. R.). **Mykologische Serodiagnostik.** [Mycological serodiagnosis.]—*Beitr. Hyg. Epidemiol.*, **11**, viii+194 pp., 75 fig., 9 graphs, 1958. [516 refs.] DM. 20.00.

This review of the status of serological methods in the diagnosis of human mycoses has an introductory chapter on the scientific basis of methods and a section on the commoner serological techniques.

The second main section is on the serology of fungi, including actinomycetes, yeasts, hyphomycetes with and without a yeast phase, and higher fungi, and is followed by a discussion.

The final section, dealing with serology of specified mycoses, covers the actinomycoses, 'yeasts', and hyphomycetes, and concludes with a consideration of mycoses of the lungs.

311. Beare (J. M.). **Critical survey of mycological research and literature for the years 1946–1956 in Ireland.**—*Mycopathologia*, **9**, 1, pp. 65–79, 1958. [27 refs.]

This survey from the Royal Victoria Hospital, Belfast, deals almost exclusively with the dermatophytes. Work by Meenan on tinea pedis [**2**, No. 1682] and moniliasis [**3**, No. 257] is noted.

312. Miguens (M. P.). **La micología en España. Revisión de la bibliografía desde el año 1946 al 1956.** [Mycology in Spain. Review of the bibliography from the year 1946 to 1956.]—*Mycopathologia*, **9**, 1, pp. 23–44, 1 map, 1958. [97 refs.]

A general review of medical mycology covering dermatophytes, deep-seated mycoses, and allergic complaints attributable to fungi.

313. Miranda (H.) & Troncoso (Milly). **Revisión de los casos de micosis estudiados en el Perú en el decenio 1946–1956.** [Review of the cases of mycoses in Peru in the decade 1946–56.]—*Mycopathologia*, **9**, 1, pp. 56–64, 1 map, 1958. [44 refs.]

This is a critical survey of the literature.

314. Marples (Mary J.). **A critical survey of medical and veterinary mycology in New Zealand, from 1946 to 1956.**—*Mycopathologia*, **9**, 1, pp. 45–55, 1958. [34 refs.]

This survey from the Medical School, University of Otago, Dunedin, is of diagnostic work and investigations into the incidence and distribution of the more common and superficial fungus infections in New Zealand carried out by a research unit set up by the Medical Research Council for New Zealand in 1948 working in collaboration with the Dept of Microbiology. The survey is presented under the following headings: tinea capitis, ecology of *Microsporum canis*, superficial infections in Polynesians, tinea pedis, *Candida albicans*, systemic mycotic infections, actinomycosis, chromoblastomycosis, cryptococcosis, and air-borne fungal spores.

315. Durie (E. Beatrix). **A critical survey of mycological research and literature for the years 1946–1956 in Australia.**—*Mycopathologia*, **9**, 1, pp. 80–96, 1 map, 1958. [103 refs.]

Brief compilations from the Institute of Medical Research, Royal North Shore Hospital, Sydney, of Australian work on actinomycosis, nocardiosis, histoplasmosis, cryptococcosis, candidiasis, sporotrichosis, chromoblastomycosis, dermatomycosis, dermatophytes from the soil, and dermatomycoses in animals [cf. **3**, Nos. 357, 358].

316. Smith (D. T.) (Special Editor). **Symposium. Chronic fungus infections.**—*J. chron. Dis., St. Louis*, **5**, 4, 5, pp. 371–592, 1957.

This symposium comprises an introduction by the Editor (pp. 371–373) followed by a useful series of reviews summarizing present knowledge of the topics treated. J. W. Peabody Jr. & J. H. Seabury deal with 'Actinomycosis and nocardiosis' (pp. 374–403, 14 fig., 136 refs.). 'North American blastomycosis' is reviewed by A. C. Curtis & F. C. Bocobo (pp. 404–429, 9 fig., 151 refs.), 'Coccidioidomycosis' (pp. 430–444, 7 fig., 31 refs.) by W. A. Winn, and 'Cryptococcosis' (pp. 445–459, 11 fig., 55 refs.) by J. W. Wilson. The late Rhoda W. Benham treats 'Species of *Candida* most frequently isolated from man: methods and criteria for their identification' (pp. 460–472, 2 pl., 29 refs.) while C. G. Loosli reviews 'Histoplasmosis' (pp. 473–488, 9 fig., 46 refs.) and P. H. Lehan & M. L. Furcolow 'Epidemic histoplasmosis' (pp. 489–503, 10 fig., 35 refs.) [**3**, No. 291].

N. F. Conant very briefly surveys 'Fungus infections of the hair and nails' (pp. 506–517, 9 fig., 15 refs.) and J. L. Callaway & S. Olansky cover clinical aspects of skin infections, including tinea, tinea [pityriasis] versicolor, and otomycosis under 'Superficial mycotic infections of the skin: diagnosis and therapy' (pp. 518–527, 10 fig., 6 refs.). D. T. Smith treats 'Miscellaneous fungus diseases' (pp. 528–544, 10 fig., 62 refs.) including sporotrichosis, geotrichosis (*Geotrichum candidum*), aspergillosis, penicilliosis, mucormycosis, chromoblastomycosis, maduromycosis, and rhinosporidiosis.

In conclusion there are articles by L. Ajello, 'Cultural methods for human pathogenic fungi' (pp. 545–551, 1 fig., 16 refs.), R. D. Baker, 'The diagnosis of fungus diseases by biopsy' (pp. 552–570, 8 fig., 24 refs.) (which gives details for Gridley and PAS staining), C. E. Smith & Margaret T. Saito, 'Serologic reactions in coccidioidomycosis' (pp. 571–579, 2 fig., 7 refs.), and D. S. Martin, 'Evaluation of skin tests and serologic methods in fungus infections' (pp. 580–591, 60 refs.).

317. Abernathy (R. S.). **The systemic mycotic diseases.**—*J. Ark. med. Soc.*, **54**, 9, pp. 365–372, 1958. [19 refs.]

Essential information is presented on actinomycosis (*Actinomyces israelii*), nocardiosis (*Nocardia asteroides* and 4 [unnamed] *N.* spp.), histoplasmosis (*Histoplasma capsulatum*), blastomycosis (*Blastomyces dermatitidis*), coccidioidomycosis (*Coccidioides immitis*), candidiasis (*Candida* [*albicans* and other *C.* spp.]), sporotrichosis (*Sporotrichum schenckii*), mucormycosis (*Mucor* and *Rhizopus* spp.), and aspergillosis (*Aspergillus* [*fumigatus*]).

Arkansas appears to be an endemic area of blastomycosis, about 20 cases of which have been seen at the University Medical Center, Little Rock, during the past 10 years. The State also forms part of the central Mississippi Valley, where histoplasmosis is endemic.

318. Vanbreuseghem (R.). **Les mycoses dans la pratique médicale quotidienne.** [Mycoses in daily medical practice.]—*Brux. méd.*, **38**, 8, pp. 281–290, 1958.

Essential information is presented on the modes of infection, symptoms, predisposing factors, and therapy of the mycoses constantly encountered in Belgium, viz., those caused by dermatophytes (*Trichophyton* and *Microsporum* spp.) and moniliasis (*Candida albicans* and other *C.* spp.). Brief observations are also included on those of exceptional occurrence, namely, actinomycosis [*Actinomyces israelii*], aspergillosis [*Aspergillus fumigatus*], mucormycosis, sporotrichosis [*Sporotrichum schenckii*], histoplasmosis [*Histoplasma capsulatum*], and torulosis [*Cryptococcus neoformans*].

319. Cook (A. H.). (Editor). **The chemistry and biology of yeasts.**—xii+763 pp., illus., New York, Academic Press Inc. (London Academic Books Ltd.), 1958. $22.0.

This useful book comprises a series of contributions by 16 authors on many aspects of yeasts. The chapters on 'The classification of yeasts' (pp. 1–62) by J. Lodder, W. C. Sloof, & N. J. W. Kreger-Van Rij and 'Pathogenic yeasts' (pp. 587–602) by G. C. Ainsworth are most likely to interest readers of this *Review*. All sections are well documented and there are author and subject indexes.

320. Littman (M. L.) & Pisano (M. A.). **Microbial growth stimulants in spleen.**—*Nature, Lond.*, **181**, 4604, p. 285, 1958.

From Mount Sinai Hospital and St. John's University, New York, the authors report the isolation from bovine spleen of a growth factor, as yet unidentified, which strongly stimulates the growth of *Candida albicans* and *Cryptococcus neoformans* in several chemically defined media.

321. McMillen (Shirley). **A simple fluid medium for diphasic fungi.**—*J. Lab. clin. Med.*, **51**, 1, pp. 141–142, 1958. [*B.H.*, **33**, p. 523.]

At the Hektoen Institute for Medical Research, Cook County Hospital, Chicago, a medium of dried human blood clot pellets and peptone broth in rubber-stoppered vaccine bottles has permitted the preservation of yeast-phase cultures of *Blastomyces dermatitidis*, *Histoplasma capsulatum*, and *Sporotrichum schenckii* for at least

2 yr. without transfer. Moreover, after prolonged incubation at 37° C. conversion from filamentous inoculum to the yeast phase was regularly obtained with these fungi.

322. Tagliavini (R.). **Proposta di alcune modifiche al metodo di Kligman–Mescon–Sharvill per la ricerca dei miceti.** [A proposal for certain modifications in the Kligman–Mescon–Sharvill method for demonstrating the presence of fungi.]—*Arch. ital. Derm.*, **28**, 2, pp. 160–162, 1957.

One disadvantage of the Kligman–Mescon method for demonstrating the presence of fungi in animal tissues [**1**, No. 1824), even with the improvements introduced by Sharvill (*Brit. J. Derm.*, **9**, p. 329, 1952), is that squamae and hairs become detached from the slide during passage through the various reagents. To obviate this the author advocates omitting the washing with alcohol after the preliminary clearing of the material in KOH.

323. Rzucidło (L.), Stachów (A.), Nowakowska (Mme A.), & Kubica (J.). **Chemical and biological properties of cell walls of Candida krusei, Trichophyton gypseum, and Penicillium notatum.**—*Bull. Acad. pol. Sci., Sér. Sci. biol.*, **6**, 1, pp. 15–20, 3 fig., 1958.

The total N contents of the cell walls of *C. krusei*, *T. gypseum* [*T. mentagrophytes*], and *P. notatum* were determined as 2·84, 5·2, and 1·19%, respectively. P was absent. The contents in hydrolysates of reducing sugars were 41·2, 25, and 18·7%, of hexosamines 1·32, 2·68, and 1·4%, and of pentose nil. By means of chromatography *C. krusei* was shown to contain glucose, galactose, and traces of mannose and arabinose, and *P. notatum* all 4 sugars (traces only of the last 2). Both *C. krusei* and *T. mentagrophytes* contained leucine, phenylalanine, valine, tyrosine, threonine, glycine, lysine, and alanine, whereas the only amino acids detected in *P. notatum* were leucine, traces of valine, glycine (or serine), and traces of alanine.

324. Blank (F.). **Note on the chemical composition of the cell wall of Haplosporangium parvum.**—*J. Histochem. Cytochem.*, **5**, 5, pp. 500–502, 1 fig., 1957.

At the Dept of Bacteriology, McGill University, X-ray diffraction showed the cell wall of *H. parvum* to consist of chitin and to contain no cellulose.

325. Cowan (S. T.) & Rowatt (Elizabeth) (Editors). **The strategy of chemotherapy.**—360 pp., 3 pl., Cambridge, University Press, 1958. 35*s*.

This volume of contributions to a symposium arranged by the Society for General Microbiology in London in April 1958 includes one by R. J. W. Byrde & G. C. Ainsworth on 'The chemotherapy of fungal diseases' (pp. 309–335; 101 refs.) in which, after a review of the mechanism of fungicidal action, there are sections on the chemotherapy of fungi pathogenic for plants and fungi pathogenic for man and animals.

326. Chanussot (P.). **Fungistatic activity of some derivatives of solasodan.**—*An. Asoc. quím. argent.*, **45**, pp. 113–120, 1957. [Abs. in *Chem. Abstr.*, **52**, 6, col. 4915C, 1958.]

In *in vitro* tests at Ventura Bosch 6741, Buenos Aires, the growth of *Trichophyton mentagrophytes* was inhibited by tomatine, tomatidine, dihydrotomatidine, solasodanol, and dihydrosolasodanol, the critical dilutions being 1:40,000, 1:65,000, 1:8,000, 1:6,000, and 1:30,000, respectively.

327. Baichwal (R. S.), Baichwal (M. R.), & Khorana (M. L.). **Antibacterial and antifungal properties of B-naphthol derivatives IV.**—*J. Amer. pharm. Ass.*, Sci. Ed., **46**, 10, pp. 603–607, 1957.

In *in vitro* tests by the agar streak and cup-plate methods at the Dept of Chemical

Technology, Bombay, marked inhibition of *Epidermophyton floccosum*, *Trichophyton rubrum*, and *T. gypseum* [*T. mentagrophytes*] was effected by 6, 6′-dibromo-β-dinaphthol and 1-bromo-β-naphthol. The growth of *E. floccosum* and *T. rubrum* was also arrested by 3-chloro-, 1-bromo-, 6-bromo-, and 1-6-dinitro-naphthols at between 1 and 10 μg./ml.

328. Uri (J.) & Bekesi (I.). **Flavofungin, a new crystalline antibiotic: origin and biological properties.**—*Nature, Lond.*, **181**, 4613, p. 908, 1 fig., 1958.

From the Dept of Pharmacology, University Medical School, Debrecen, Hungary, the authors give a description of flavofungin, produced by *Streptomyces flavofungini* sp. nov. [nom. nud.] isolated from desert soil. When it was administered *per os* to mice fed with *Candida albicans* little or no infection was detected in the faeces. It inhibited the growth of *C. albicans*, *Cryptococcus neoformans*, and a range of dermatophytes and other pathogenic fungi at 4–5, 2, and 8–30 μg/ml., respectively.

329. Lampen (J. O.), Morgan (E. R.), & Slocum (Adelaide). **Effect of nystatin on the utilization of substrates by yeast and other fungi.**—*J. Bact.*, **74**, 3, pp. 297–302, 2 graphs, 1957.

At the Squib Institute for Medical Research, New Brunswick, New Jersey, a study of effects of nystatin [mycostatin] on various fungi and bacteria including *Saccharomyces cerevisiae*, *Candida albicans*, and *Escherichia coli* showed mycostatin to inhibit the endogenous respiration and the aerobic and anaerobic utilization of glucose by fungi at concentrations which approximate to those needed to inhibit growth of the organisms. Inhibition is more rapid and occurs at lower concentrations at pH 4·5 than at pH 6·5 or above. The penetration of the cell by glucose does not appear to be blocked. Bacteria are unaffected by mycostatin to which their sugar-utilizing systems are insensitive. The action of mycostatin appeared to be irreversible.

330. Larsh (H. W.), Silberg (S. L.), & Hinton (Agnes). **Use of the tissue culture method in evaluating antifungal agents.**—*Antibiot. Ann., 1956–1957*, pp. 918–922, 1957.

At the Communicable Disease Center, Kansas City, various fungicides and antibiotics were examined for activity against *Histoplasma capsulatum* and other pathogenic fungi. After conversion to the yeast phase the fungi were maintained in HeLa maintenance media and roller drum tissue cultures inoculated in a standardized manner. After incubation in the presence of the antifungal agent the contents of representative tubes was pipetted on to plates of Sabouraud's agar to determine the effect of the treatment. From the results obtained it was concluded that this is a promising method for testing fungicides against *H. capsulatum* and other systemic fungi.

331. Lucas (E. H.), Ringler (R. L.), Byerrum (R. U.), Stevens (J. A.), Clarke (D. A.), & Stock (C. C.). **Tumor inhibitors in Boletus edulis and other holobasidiomycetes.**—Reprint from *Antibiot. & Chemother.*, **7**, 1, 4 pp., 1957.

At the Division of Experimental Chemotherapy, Sloan–Kettering Institute for Cancer Research, New York, an active principle present in aqueous extracts of sporophores of *B. edulis*, probably a protein or a peptide, retarded the growth of Crocker mouse sarcoma *in vivo*. No such active principle was demonstrable in mycelium of the fungus grown *in vitro*. Preliminary examination has revealed tumor-inhibiting principles both in the sporophores and in the submerged culture mycelium of *Collybia radicata* var. *furfuracea* and *Clitopilus abortivus*.

332. Breed (R. S.), Murray (E. G. D.), & Smith (N. R.). **Bergey's manual of determinative bacteriology.**—7th Edition, pp. xviii+1094, London, Baillière, Tindall & Cox Ltd., 1957.

Attention is drawn to the section on the Actinomycetales (pp. 694–829) which includes keys to and descriptions of species of *Actinomyces* (3 spp.), *Nocardia* (45), and *Streptomyces* (150).

333. Levaditi (J. C.), Bretey (J.), & Pick (F.). **Images histopathologiques expérimentales simulant les 'grains actinomycosiques' ou les 'cellules lépromateuses de Virchow'.** [Experimental histopathological pictures simulating 'actinomycotic granules' or the 'lepromatous cells of Virchow'.]—*Pr. med.*, **65**, 94, pp. 2165–2167, 9 fig., 1957.

From the Institut Pasteur, Paris, it is reported that structures resembling actinomycotic granules and the fungal grains of maduromycosis can be produced in the lungs of rabbits inoculated with a virulent human strain of *Mycobacterium tuberculosis*.

334. Seeliger (H. P. R.). **Mykologische Berichte.** [Mycological reports.]—Reprint from *Med. Mitt. Schering A.G., Berlin.*, **19**, 1, 12 pp., 12 fig. (8 col.), 1958.

General notes are given on the differential diagnosis and therapy of actinomycosis (*Actinomyces israelii*), nocardiosis (*Nocardia asteroides*), and streptomycosis (*Streptomyces* spp.).

335. Warthin (T. A.) & Bushueff (B.). **Pulmonary actinomycosis.**—*Arch. intern. Med.*, **101**, 2, pp. 239–243, 3 fig., 1958.

Three cases of lung infection by *Actinomyces bovis* [*A. israelii*] without significant pleural or thoracic wall involvement are reported from the Veterans' Administration Hospital, West Roxbury, Massachusetts, 2 having been erroneously diagnosed as carcinoma. The X-ray pictures were all similar, showing the origin of the lesion at the hilus with a fan-shaped or lobulated consolidation expanding into the lung parenchyma, particularly along the bronchi. Secondary lesions were occasionally present in other parts of the lung. In cases of suspected carcinoma characterized by the foregoing features sputum smears and cultures should be examined for actinomycosis before surgery is undertaken.

336. Jepson (E. M.), Rose (F. C.), & Tonkin (R. D.). **Thoracic actinomycosis.**—*Brit. med. J.*, **1**, 5078, pp. 1025–1027, 5 fig., 1958. [21 refs.]

Two cases of thoracic actinomycosis in men, both initially unsuspected, are reported from Westminster Hospital, London. The 1st, who had a pleural effusion, died 7 yr. later of adrenal failure, the 2nd, suffering from empyema necessitatis, recovered following treatment with penicillin and streptomycin. The diagnostic importance in thoracic actinomycosis of what in the authors' opinion is a characteristic type of osteitis of the ribs is emphasized and the significance of organisms other than *Actinomyces israelii*, particularly *Actinobacillus actinomycetemcomitans*, in the pathogenesis of the disease is discussed.

337. Rivera (J. V.) & Baralt Perez (Josefina). **Pulmonary nocardiosis treated with chloramphenicol.**—*Arch. intern. Med.*, **100**, 1, pp. 152–156, 2 fig., 1 graph, 1957.

A case of pulmonary infection by *Nocardia asteroides* in a 65-yr.-old patient at the San Patricio Veterans' Administration Hospital, San Juan, Puerto Rico (the 1st record for the island), was successfully treated by a course of chloramphenicol therapy. The organism proved resistant to the drug in *in vitro* experiments.

338. Brzin (B.) & Lenart (I.). **Experimental nocardiosis in White Mice.**—*Acta. med. jugoslav.*, **11**, 3, pp. 292–297, 9 fig., 1957. [Serbo-Croatian summary.]

At the Medical Faculty, University of Ljubliana, Yugoslavia, the pathogenicity of *Nocardia asteroides* to resistant white mice was enhanced by culture on Winkle's (1955) medium (*Microbiologishe und serologische Diagnostik*, Fischer, Stuttgart), using 0·6 instead of 0·4% agar. The autopsy findings are described. Cultures from the purulent granulomata in the parietal and visceral peritoneum and other organs produced star-shaped colonies at 37° C., some of which developed into giant forms after 3 weeks, while their colour changed from white through yellow to orange and coral red.

339. Bishop (C. T.) & Blank (F.). **The chemical composition of the Actinomycetales: isolation of a polysaccharide containing d-arabinose and d-galactose from Nocardia asteroides.**—*Canad. J. Microbiol.*, **4**, 1, pp. 35–42, 1958.

At the Dept of Bacteriology, McGill University, Montreal, alkali extraction of defatted, deproteinized cells of *N. asteroides* [cf. **2**, No. 1735] yielded a polysaccharide, probably forming the skeleton of the cell wall, which on hydrolysis yielded *d*-arabinose and *d*-galactose in a molar ratio 1:17. *d*-Arabinose is present in the wax of *Mycobacterium tuberculosis*, and this is taken to suggest a relationship.

340. Gentles (J. C.) & O'Sullivan (J. G.), with the assistance of Dewar (W. A.), Lamont (I. C.), Ferguson Smith (J. F.), Lauder (I. M.), Pottie (A.), & Robertson (J. M.). **Correlation of human and animal ringworm in West of Scotland.**—*Brit. med. J.*, **2**, 5046, pp. 678–682, 1957. [12 refs. *B.H.*, **33**, p. 38.]

The results of an investigation of 163 cases of human ringworm of suspected animal origin, with an addendum of a further 44 cases, are reported from the Depts of Bacteriology and Veterinary Pathology, University of Glasgow. In the main series dermatophytes were cultured from 117 of the cases. The isolates were: *Trichophyton verrucosum* (82), *T. mentagrophytes* (15), *Microsporum canis* (12), *T. sulphureum* (6), *T. rubrum* (1), *M. audouinii* (1). From 78 suspected animals cultures of *T. verrucosum* (71), *T. mentagrophytes* (1), and *M. canis* (6), were obtained. In 26% of the cases the same dermatophyte was cultured from the human and the suspected animal, in 3% a different zoophilic dermatophyte was isolated from each source, and in 5% human infection was by an anthrophilic fungus. Cattle are the main source of infection in the area though no human infection by *T. mentagrophytes* originated from them. Contrary to findings in England, small animals are not an important source of infection and it is pointed out that human infections are frequently wrongly attributed to an animal source or to the wrong animal.

341. Langer (Hildegard). **Epidemiologische und klinische Untersuchungen bei Onychomycosen. Beitrag zur Berliner Pilzflora 1944–1956.** [Epidemiological and clinical studies of onychomycoses. Contribution to the Berlin mycoflora 1954–1956.]—*Arch. Klin. exp. Derm.*, **204**, 6, pp. 624–636, 2 fig., 1 graph, 1957.

The increasing prevalence of onychomycosis observed in all parts of Germany has been confirmed at the Universitätshautklinik der Charité, Berlin, where the cases in 1955 numbered 188 (18·6% of all dermatomycoses) and in 1956 253 (28·2), as compared with only 91 (2) from 1919–34. Cultures were obtained from 166 of 318 cases, of which 136 (82%) yielded *Epidermophyton* [*Trichophyton*] *rubrum*, 8 *E.* [*T.*] *interdigitale*, 6 *T. rosaceum* [*T. megnini*], 6 *T. cerebriforme* [*T. tonsurans*], and *T. gypseum granulosum* [*T. mentagrophytes*]. There were 6 further isolations of *Scopulariopsis brevicaulis* [**2**, Nos. 1112, 1703; **3**, No. 51] and 2 of *Candida albicans*, while dual infections by *T. rubrum* and *S. brevicaulis* or *S. fusca* [cf. **2**, No. 126], *T. rubrum* and *T. faviforme* [*T. verrucosum*], and *C. albicans* and *C. tropicalis* were observed in 5 instances.

T. rubrum was also the principal agent of epidermophytoses without nail involvement (63%).

Middle-aged people, especially housewives, were the chief sufferers from onychomycosis; there were only 2 cases in children under 10. Endogenous factors requiring further elucidation appear to be concerned in its pathogenesis [cf. **3**, No. 262].

342. Scheffler (H. S. F.). **Über die Verbreitung der Hautpilzinfektionen und Pilzuntersuchungsergebnisse bei Schulpflichtigen.** [On the distribution of dermatophytoses in children of school age, and the results of a mycological investigation.]—*Mykosen*, **1**, 3, pp. 102–108, 2 graphs, 1958.

From the Dermatologischen Abteilung des Städt. Krankenhauses, Berlin-Britz, are reported the results of an investigation covering 2,622 schoolchildren. Of 1,347 girls 258 (19%) were suspected, on clinical grounds, of having foot mycoses, and in 111 (43%) of them this diagnosis was confirmed by mycological examination. For the boys the corresponding figures were 1,275, 373 (29%), and 126 (34%).

343. Cochet (G.), Doby-Dubois (M.), Deblock (S.), Doby (J. M.), & Vaiva (C.). **Contribution à la connaissance des teignes infantiles du Cameroun.** [A contribution to the knowledge of the infantile ringworms of the Cameroons.]—*Ann. Parasit. hum. comp.*, **32**, 5–6, pp. 580–589, 2 fig., 1957. [*B.H.* **33**, p. 661.]

Of 866 cases of ringworm among children living at or near Yaoundé, French Cameroons, 710 (80·8%) were due to *Trichophyton* spp. and 156 (19·2%) to *Microsporum*. In all, 241 isolates of *T. yaoundei*, 149 of *T. soudanense*, 64 of *T.* [*M.*] *ferrugineum*, and 31 of *M. audouinii* were obtained.

Under *M. audouinii* the authors regroup most of the species of *Microsporum* so far described, retaining the well-known classical species as varieties. The strains isolated locally fall between *M. audouinii* and *M. canis*, but nearer to the former because of the rarity of fuseaux.

T. yaoundei Cochet & Doby-Dubois, provisionally regarded as a new species, makes slow, poor growth and displays considerable polymorphism. In culture a small yellowish, hairless, humid, waxy-looking 'pimple' or 'button' develops; it may remain like this or develop into a crater, or become vermiculate, but it does not spread much. It may turn dark chocolate, but the middle always becomes a very dark chocolate. In about 30% of the isolates the culture, on ageing, gives rise, near to a small, brown colony, to a large, smooth, protruding 'pimple' or 'button' or a sort of contorted, sponge-like body; occasionally, the original brown colony becomes surrounded by a large, cerebriform mass. These late-appearing formations are dirty white or yellowish, and unlike the small brown colonies, are very hard and resistant. Young cultures are filamentous and branched, but quickly form into rows of arthrospores. The brownish friable part presents a mass of irregular hyphae, formed from intercalary chlamydospores (5–9 μ diam.), which separate at the slightest contact. Secondary cultures have essentially the same microscopic morphology as the primary ones.

[A preliminary account of this work, by G. Cochet & M. Doby-Dubois, appears in *Sem. Hôp. Paris*, **33**, 49–50, pp. 2980–2986, 11 fig., 1957.]

344. González-Ochoa (A.) & Orozco-Victoria (C.). **Dermatófitos causantes de 'tinea unguis' en México.** [Dermatophytes producing 'tinea unguis' in Mexico.]—*Rev. Inst. Salubr. Enf. trop. (Mexico)*, **17**, 3, pp, 93–95, 1957.

Cultures on Sabouraud glucose agar with penicillin, streptomycin, and cycloheximide were positive from 32 cases of tinea unguis and negative from 68. The cultures were identified as: *Trichophyton rubrum*, 16; *T. tonsurans*, 12; and *T. mentagrophytes*, 4.

345. Magalhães (O.). **Ensaios de micologia.** [Studies on mycology.]—*Mem. Inst. Osw. Cruz*, **55**, 1, pp. 1–16, 1957.

A summary is given of records by the author of mycoses of the skin in the state of Minas Gerães, Brazil; 200 cases due to dermatophytes are tabulated. *Microsporum canis* was the cause of most of the tinea capitis and tinea corporis. *M. audouinii* was isolated from 5 cases while *Trichophyton violaceum* was isolated from 1. Species of *Trichophyton* of the *tonsurans* group are also recorded as well as *T. rubrum*, *Epidermophyton floccosum*, *Achorion* [*T.*] *schoenleinii*, and *A.* [*T.*] *gallinae*.

346. Hazen (Elizabeth L.). **Effect of temperature and nutrition upon macroconidial formation of Microsporum audouini.**—*Mycologia*, **49**, 1, pp. 11–19, 1 fig., 1957.

This paper from the New York State Dept of Health reports work undertaken because of repeated failure of macroconidial production in fresh isolations of *M. audouinii* grown on honey agar plus yeast extract, a medium found previously to favour their production [**1**, Nos. 987, 2339]. On honey agar or a basal medium at 25–27° C. max. macroconidial production was obtained by the addition of yeast extract which supplies one or more unknown factors essential for their development. Incubation at 29–32° C. was inhibitory and it was suggested that temperature is as important as nutritional factors in macroconidial production.

347. Lawson (G. T. N.) & McLeod (W. J.). **Microsporum canis—an intensive outbreak.**—*Brit. med. J.*, **2**, 5054, pp. 1156–1160, 1957. [*B.H.*, **33**, p. 125.]

An outbreak of *M. canis* ringworm of high infectivity rate is reported from Belfast where 93% of the children and 30% of the adults exposed to the infection became infected. The source of the outbreak was traced to 9 persian kittens from a local breeder. An incubation period of 17–22 days was confirmed.

348. Wenk (P.) & Geleick (H.). **Zur Identifikation von Microsporum felineum Fox et Blaxall durch Zusatz von Erdabkochungen zum Nährboden.** [Identification of *Microsporum felineum* Fox & Blaxall by addition of soil decoctions to the medium.]—*Dermatologica, Basel*, **116**, 3, pp. 188–192, 4 fig., 1958. [English and French summaries.]

At the Tropenmedizinisches Institut, Tübingen, 2 non-sporulating strains of *M. felineum* [*M. canis*] from a human patient and a cat, respectively, formed small but typical macroconidia on Sabouraud malt agar enriched with soil decoction.

349. Grin (E. I.) & Ožegović (L.). **Microsporum gypseum kao parazit Čovjeka I saprofit izoliran iz zemlje.** [*Microsporum gypseum* as a parasite in Man and a saprophyte isolated from soil.]—*Rad. med. Nauk.*, **8**, 4, pp. 5–14, 13 fig., 1957. [21 refs. *B.H.*, **33**, p. 39.]

The only dermatophyte isolated from 120 samples of soil taken from around dwellings in different parts of Yugoslavia was *M. gypseum*. A case of *M. gypseum* infection on a 9-yr.-old boy is described. It is stated that this case is the 23rd for the country, which brings the total number reported in the literature to 322 [**2**, No. 600]. Experiments on the growth of *M. gypseum* in sterile and non-sterile soil and on detached human hair are reported.

350. Vialkowitsch (B.). **Oedematös-nodöse Trichophytide bei einem Erwachsenen.** [Oedematous-nodal trichophytids in an adult.]—*Z. Haut- u. Geschlechtskr.*, **22**, 2, pp. 31–37, 1957.

This is a full report from the Universitätshautklinik, Tübingen, Germany, of a case of infection of the left lower jaw of a 50-yr.-old farmer by *Trichophyton gypseum asteroides* [*T. mentagrophytes*], contracted from an ox.

351. Jung (H. D.). **Familiäre Endemien durch Trichophyton faviforme album (Sabouraud) im östlichen Mecklenburg-Vorpommern.** [Family endemics of *Trichophyton faviforme album* (Sabouraud) in east Mecklenburg-Vorpommern.]—*Mykosen*, **1**, 3, pp. 93–95, 2 fig., 1958.

A brief note on outbreaks in 3 families of *T. faviforme album* [*T. verrucosum* var. *album*] contracted from cattle.

352. Smout (M. S.) & Bakerspigel (A.). **Ringworm in southwestern Ontario caused by Trichophyton verrucosum.**—*Canad. med. Ass. J.*, **78**, 1, pp. 38–40, 1 fig., 1958.

Five cases of human infection by *T. verrucosum* are reported for the first time from rural areas in SW. Ontario [cf. **2**, No. 1957]. All the patients were males, aged 7–42 yr. A further case of infection in a 19-yr.-old female city-dweller, with no animal contacts, is noted in an addendum.

353. Telner (P.), Blank (F.), & Schopflocher (P.). **Trichophyton rubrum infections of the lower legs.**—*Canad. med. Ass. J.*, **77**, pp. 1033–1035, 2 fig., 1957.

Three cases in women are reported from the Royal Victoria Hospital, Montreal. Evidence is presented which suggests that leg infections may often result from scratching with infected nails. The high incidence in dark-haired women may be due to scratching during the period of pruritus following the shaving of the legs.

354. Kaplan (W.) & Gump (R. H.). **Ringworm in a Dog caused by Trichophyton rubrum.**—*Vet. Med.*, **53**, 3, pp. 139–142, 3 fig., 1958.

From the Communicable Disease Center, Atlanta, Georgia, is reported the case of a 1-yr.-old Boxer dog with a lesion 2 cm. diam. on the left hind leg from which *T. rubrum* was isolated. The owner of the dog had tinea pedis caused by the same dermatophyte. This is stated to be the 2nd record of *T. rubrum* from dogs [cf. **2**, No. 1694].

355. Bonanni (Maria P.). **Localizzazione blefaro-ciliare da Trichophyton rosaceum.** [Blepharo-ciliar localization of *Trichophyton rosaceum.*]—*G. Ital. Derm.*, **98**, 6, pp. 667–673, 1 fig., 1957. [French, English, and German summaries.]

A very unusual case of infection by *T. rosaceum* in a 6-yr.-old boy is reported from the Clinica Dermosifilopatica, University of Ferrara. The fungus was isolated from the eyelashes and the edge of the right upper eyelid. The scalp was also affected by a trichophytic kerion.

356. Georg (Lucille K.), Kaplan (W.), & Camp (L. B.). **Trichophyton equinum—a revaluation of its taxonomic status.**—*J. invest. Derm.*, **29**, 1, pp. 27–37, 3 fig., 1957. [14 refs.] **Equine ringworm with special reference to Trichophyton equinum.**—*Amer. J. vet. Res.*, **18**, 69, pp. 798–810, 3 fig., 1957. [40 refs.]

In the 1st of these papers from the Communicable Disease Center, Atlanta, Georgia, after a brief historical review, the authors summarize the results of a study of 33 isolates of *T. equinum* from which they conclude *T. equinum* is a distinct species related to *T. mentagrophytes*. Parasitized hairs show a sheath of spores 3·5–8 μ diam. In culture the growth is white, downy to fluffy, and the reverse is a brilliant yellow agar. Microconidia, 2–3 μ in length, occur on the sides of the hyphae but macroconidia are very rare. *T. equinum* is exceptional among dermatophytes in having a deficiency for nicotinic acid, a requirement satisfied by hair of equines but not by hair of man or other animals.

In the 2nd paper the same information on *T. equinum* is followed by summaries of the history and characteristics of *T. mentagrophytes* var. granular, *T. verrucosum*,

M. canis (with which *M. equinum* Bodin is regarded as being conspecific) and *M. gypseum*, which have all been associated with equine ringworm.

357. Durie (E. Beatrix) & Frey (Dorothea). **A new species of Trichophyton from New South Wales.**—*Mycologia*, **49**, 3, pp. 401–411, 8 fig., 1957.

During work at the Institute of Medical Research, Royal North Shore Hospital, Sydney, Australia, a new species, *T. terrestre* Durie & Frey, was isolated from soil. It more nearly resembles *T. mentagrophytes* than other species of the genus but is distinguished by the appearance of the colony and the abundance of small ovoid macroconidia, 8–30 × 4–5 μ. Pathogenicity tests with guinea-pigs were negative. Trichophytin is produced.

358. **Report for the year 1956–57 of the Institute of Medical Research, Royal North Shore Hospital, Sydney.**—Pp. 33. [Received 1958.]

In the mycological section of this report (pp. 17–18) Durie (E. Beatrix) & Frey (Dorothea) tabulate the most common keratinophilic fungi in 358 samples of Australian and New Guinea soil. *Microsporum gypseum* was found in 7·3%, *Keratinomyces ajelloi* in 9·8%, and *Trichophyton terrestre* [see above] in 2·5%. In addition 15 '*Ctenomyces*-like fungi' and 2 members of the Entomophthoraceae were isolated.

A collection of approximately 200 cultures of fungi of medical interest is maintained at the Institute.

359. González-Ochoa (A.) & Córdova (J.). **El factor sensibilización en las dermatofitosis de la piel lampiña.** [The role of sensitization in the dermatomycosis of the glabrous skin.]—*Rev. Inst. Salubr. Enf. trop.* (*México*), **17**, 3, pp. 107–113, 4 fig., 1957. [English Summary.]

Living cultures of *Trichophyton mentagrophytes*, *T. concentricum*, and *Microsporum canis* applied over the skin produced a scaly, erythematous and vesicular eruption. The same inoculum with fluorocortisone at 0·19% did not produce an inflammatory lesion. When the experiment was repeated with dead cultures inflammation occurred only in individuals previously sensitized.

360. Higuchi (K.), Urabe (H.), & Takaki (K.). **Characteristics of the scrotal skin for the infection of Trichophyton.**—*Kyûshû J. med. Sci.*, **8**, 3, pp. 88–103, 18 fig., 3 graphs, 1957.

From the results of inoculation experiments with *T. purpureum* [*T. rubrum*] on the scrotum of 5 patients at the Faculty of Medicine, Kyûshû University, Fukuoka, Japan, the authors conclude that its susceptibility is of a very low order compared with that of the genito-femoral region, used as a control. Although the desquamation which followed the initial erythema disappeared after 7–10 days, the fungus could still be detected in the horny layer at that time and later. By the end of 20 days the skin was restored to its normal condition.

Histological, histochemical, and biochemical studies were undertaken to elucidate the problem of the inadequate conditions for the development of *T. rubrum* prevailing on the scrotum. The surface was found to be covered with capric acid, which does not occur in the genito-femoral region.

361. Georg (Lucille K.) & Camp (L. B.). **Routine nutritional tests for the identification of dermatophytes.**—*J. Bact.*, **74**, 2, pp. 113–121, 3 fig., 1957. [*B.H.*, **33**, p. 282.]

From the Communicable Disease Center, Atlanta, Georgia, the authors propose certain nutritional tests for distinguishing between related species of some common dermatophytes. Two chemically defined vitamin-free media are employed: in one

the N source is vitamin-free casein hydrolysate, in the other NH_4NO_3. The first is supplemented with thiamin (0·2 μg/ml.) and/or *i*-inositol (50 μg/ml.), the second with L-histidine (30 μg/ml.).

At 37° C. *Trichophyton schoenleinii* isolates were autotrophic, half the isolates of *T. concentricum* autotrophic and half somewhat inositol deficient, while 84 and 16% of *T. verrucosum* isolates showed a deficiency for thiamin and thiamin and inositol, respectively. At lab. temperature *T. mentagrophytes*, *T. rubrum*, and *T.* [*Microsporum*] *ferrugineum* were found to be autotrophic, and *T. tonsurans* and *T. violaceum* thiamin deficient while *T. megnini* (but not *T. gallinae*) was histidine deficient. *T. equinum* was exceptional in having an absolute requirement for nicotinic acid [**3**, No. 356].

[These results are also summarized by Georg (Lucille K.), Dermatophytes. New methods in classification, U.S. Dept Health, Atlanta, Ga., pp. 15, 5 fig., 1957; a paper read at the 11th Internat. Congress of Dermatology, Stockholm, Aug. 1957.]

362. Jensen (E. M.), Altschuler (H.), & Bard (R. C.). **Glycolytic and respiratory enzymes of Trichophyton mentagrophytes.**—*J. Bact.*, **74**, 5, pp. 656–660, 4 graphs, 1957.

At the Smith, Kline, and French Laboratories, Philadelphia, Pennsylvania, studies of cell-free extracts of *T. mentagrophytes* indicated the presence of both the hexosediphosphate and the hexosemonophosphate pathways of carbohydrate breakdown, as well as the tricarboxylic acid cycle. With a few exceptions all the dehydrogenases exhibited a specific requirement for triphosphopyridine nucleotide (TPN), an observation which may provide a lead to the development of chemotherapeutants.

363. Uri (J.), Szathmáry (S.), & Herpay (Z.). **Über die Antibioticaproduktion von Pilzen am Ort ihres natürlichen Vorkommens. Der Nachweis der Antibioticaproduktion von in Horngebilden lebenden Dermatophyten.** [On the antibiotic production of fungi at the site of their natural occurrence. The demonstration of antibiotic production by dermatophytes inhabiting horny structures.]—*Pharmazie*, **12**, 8, pp. 485–488, 5 fig., 1957.

At the Pharmacological Institute of the Medical University, Debrecen, Hungary, fragments of the squamae and hair of 21 of 25 patients infected by dermatophytes exerted a powerful antibiotic action against *Bacillus subtilis* in agar cultures which was reduced or inhibited by penicillinase. Most of the isolates from the infected material were identified as *Trichophyton mentagrophytes*, but *Epidermophyton floccosum* developed in 1 or 2 cases. In maize steep shake cultures these organisms also produced an antibiotic, presumably penicillin [cf. **2**, No. 2187], the effect of which was counteracted by penicillinase.

[These results are also reported in *Nature, Lond.*, **179**, 4568, pp. 1029–1030, 1957.]

363*a*. Holt (J. A. B.) & Morgan (W. C.). **Fungi in otitis externa.**—*Sth. med. J.*, **51**, 2, pp. 144–146, 1958.

During the past 3½ yrs. [unspecified] fungi developed in smears from 176 infected ears (73% of a consecutive series of cases) at Charleston, W. Virginia. Encouraging results were given by a regimen of therapy comprising, *inter alia*, painting the canal walls with a mixture of equal parts of tincture of merthiolate and glycerin+oil of cloves (2 drops/oz.) and insufflation of sulphathiazole or terramycin powder over the surface: on discharge the patient was given aerosporin otic solution to be applied as a cleansing agent to the canal walls. The average number of visits was 2·1 with a 3-day interval between each.

364. Konigsbauer (H.). **Experimenteller Beitrag zur Bedeutung des Cerumens für die Pathogenese der Otomykose.** [An experimental contribution to the importance of cerumen in the pathogenesis of otomycoses.]—*Mykosen*, **1**, 3, pp. 96–101, 5 fig., 1958. [12 refs.]

At the Privatlaboratorium für Dermatologie und Mikrobiologie, Knittelfeld, Austria, cerumen samples from 114 persons were examined individually. In 85% fungistatic activity was demonstrable, being strong or complete against *Trichophyton gypseum* [*T. mentagrophytes*] and *T. rubrum*, and moderate to weak against several aspergillaceous fungi; there was no activity against yeasts. Cerumen is most effective when in the moist fatty condition, when fungistatic activity is at a maximum and the best possible coverage of the skin of the outer ear is achieved. When dry it is not fungistatic.

365. Wenk (P.) & Frey (J. R.). **Prüfung von Antimykotica am Meerschweinchen unter Verwendung von zwei Mykoseherden am gleichen Tier. (Kombinationsversuch).** [Assay of antimycotics on the Guinea-pig by the use of two foci of mycosis on the same animal (combination test).]—*Dermatologica, Basel*, **116**, 3, pp. 156–167, 1958. [English and French summaries.]

The technique herein described involves the inoculation of guinea-pigs with *Trichophyton mentagrophytes* [see below] on both flanks so that either the 2 infections can be treated or 1 used as a control. Theoretically, the method should permit a saving of 50% in animals, material, and time, but in practice the economy amounts to only 40%, the relation between treatment and control being 1:2 in the combined test as compared with 1:7 in the single.

366. Wenk (P.), Frey (J. R.), & Fust (B.). **Vergleichende Prüfung chemischer Verbindungen auf antimykotische Wirksamkeit in vitro im Haartest and am Meerschweinchen.** [Comparative assay of chemical compounds for antimycotic activity *in vitro*, in the hair test, and on Guinea-pigs.]—*Dermatologica, Basel*, **117**, 3, pp. 167–187, 1958. [English and French summaries.]

Of 233 substances derived from over 20 different series of chemical compounds which were tested by Hoffmann La Roche & Co. A.G., Basel, Switzerland, for their activity against *T. mentagrophytes* [see above], 39% were considered to be fungistatic *in vitro*, 10% fungicidal in the hair test [**3**, No. 209], and 33% active in the guinea-pig. No correlation could be established between the results obtained by the several methods.

367. Andleigh (H. S.). **A note on the growth of Malassezia furfur.**—*Mycopathologia*, **9**, 1, pp. 20–22, 1958.

At the S. M. S. Medical College, Jaipur, India, the author, using material from 100 cases of tinea versicolor, was unsuccessful in attempts to culture *M. furfur* using either Panja's methods [**1**, No. 966] or a wide range of other media.

368. Floch (H.) & Mailloux (M.). **Un cas de piedra noire à Cayenne.** [A case of black 'piedra' at Cayenne.]—*Bull. Soc. Path. exot.*, **50**, 5, pp. 649–652, 1957.

The 1st case of infection by *Piedraia hortai* in French Guiana is reported from the Institut Pasteur, Cayenne, in the hair of a 25-yr.-old laboratory assistant. Groups of 5–10 ovoid asci, $27 \times 20 \mu$, were readily detected in the hyphal nodules by direct examination, and free ascospores, $32 \times 5–6 \mu$, at the periphery of the nodules.

369. Fukushiro (R.), Kagawa (S.), Nishiyama (S.), & Takahashi (H.). **Un cas de chromoblastomycose cutanée avec métastase cérébrale mortelle.** [A case of

cutaneous chromoblastomycosis with fatal cerebral metastasis.]—*Pr. med.*, **65**, 94, pp. 2142–2143, 8 fig., 1957.

A case of chromoblastomycosis caused by *Hormodendrum* [*Phialophora*] *pedrosoi* in an 8-yr.-old girl is described from the Dermatological Clinic, Tokyo University. It is the 4th report of this disease from Japan. The child had been treated 1 year previously for *Trichophyton* [*Microsporum*] *ferrugineum* ringworm of the face and trunk. Cutaneous lesions of chromoblastomycosis were present on the right cheek and nostril only. Two months later symptoms suggestive of cerebral tumour were noted and these were followed by death 8 months afterwards. *P. pedrosoi* was isolated from, and demonstrated microscopically in, the skin and brain lesions: other organs were not examined. It is considered that the fungus was disseminated in the blood stream.

370. Rajam (R. V.), Kandhari (K. C.), & Thirumalachar (M. J.). **Chromoblastomycosis caused by a rare yeast like dematiaceous fungus.**—*Mycopathologia*, **9**, 1, pp. 5–19, 8 fig., 1958. [*B.H.*, **33**, p. 578.]

A fatal case of long duration and unusual clinical type, stated to be the 2nd reported from Asia, is recorded from the V. J. Hospital, Amritsar, Punjab. The patient, a boy of 7, developed lesions on the face and later on all the extremities with bone involvement. Histopathological and mycological studies were made. Mycelial and yeast phases of the causative fungus were found in the host and both were obtained in culture. Young cultures were yeast-like and with age an olive-black fluffy *Hormodendrum* type of mycelial growth developed. Very old cultures showed dark, thick-walled sclerotic cells. The pathogen was identified as *Fonsecaea dermatitidis* [**1**, No. 1803].

371. Ridley (M. F.). **The natural habitat of Cladosporium carrionii, a cause of chromoblastomycosis in Man.** *Aust. J. Derm.*, **4**, 1, pp. 23–27, fig., 1957. [*T.D.B.*, **55**, p. 817.]

Evidence regarded as reasonably complete is presented from comparative serological studies and inoculation experiments on 3 volunteers that the organisms isolated from fence posts in Queensland were strains of *C. carrionii* capable of infecting human skin [**3**, No. 288].

372. Renault (P.), Arnaud (G.), & Pesle (G. D.). **Aspergillose nasale et sinusienne.** [Nasal and sinusal aspergillosis.]—*Sem. Hôp., Paris*, **33**, 49–50, pp. 2975–2978, 1957. [20 refs.]

After an historical review (1885–1945), the authors describe cases of nasal and sinusal aspergillosis, apparently caused by *Aspergillus fumigatus*, found in 2 female patients aged 29 and 53 yr. Notes are given on the clinical symptoms, mycological diagnosis, and treatment (primarily surgical) of the 2 cases.

373. Watson (S. H.), Moore (S.), & Blank (F.). **Generalized North American blastomycosis.** *Canad. med. Ass. J.*, **78**, pp. 35–38, 3 fig., 1958.

From McGill University is reported a case of *Blastomyces dermatitidis* infection in a 40-yr.-old white male, which was of interest in its unusually rapid course, simulating a pyogenic septicaemia. The patient received many antibiotics in large dosages. There was no chronic skin lesion, but the fungus was present in the scars of mediastinal lymph nodes, suggesting a respiratory origin.

The renal lesions were unusual in that casts composed of the fungus were present in many of the tubules, and many glomeruli were entirely replaced by heavy fungal growth.

374. Grandbois (J.), Giroux (M.), Gravel (J.), & Beaulieu (M.). **Le 2-hydroxystilbamidine dans le traitement de la blastomycose nord-américaine.** [2-

hydroxy-stilbamidine in the treatment of North American blastomycosis.] — *Laval méd.*, **24**, 2, pp. 165–183, 10 fig., 1957.

Two cases of systemic North American blastomycosis [*Blastomyces dermatitidis*], a farmer aged 53 and a workman of 36, responded favourably to courses of 2-hydroxy-stilbamidine at the Hôpital Laval, Quebec [see **3**, No. 71], the former patient receiving a total of 9 g. (20 Oct. 1956–13 Mar. 1957) and the latter 6·1 (9 Feb.–19 Mar. 1957). Tolerance was complete in the 1st case but the 2nd suffered severe general disturbances which were apparently attributable to the drug.

375. Scott (P. W.). **A possible case of pulmonary moniliasis.**—*Amer. Rev. Tuberc.*, **77**, 2, pp. 329–337, 6 fig., 1 graph, 1958. [Spanish and French summaries.] [*B.H.*, **33**, p. 579.]

Following a summary of information on the clinical and roentgenographic findings associated with lung infection by *Candida albicans* and on the diagnosis and treatment of the disease, a report on a case tentatively referred to this fungus in a 52-yr.-old female is presented from the State University of Iowa Hospitals, Iowa City. The diagnosis was based, *inter alia*, on the development of thrush on the tongue; repeated culture of *C. albicans* from bronchoscopic aspirations, sputum, gastric washings, and faeces; positive agglutination at a high titre; and suggestive X-ray findings. The patient responded very favourably to a course of potassium iodide.

376. Heilig (R.) & Andleigh (H. S.). **Bronchopulmonary moniliasis.** *J. Indian med. Ass.*, **30**, 3, pp. 82–87, 7 fig., 1958.

A 50-yr.-old male Parsee suffering from a protracted febrile disease, characterized by dermatosis of the hands and feet, pancytopenia, and liver enlargement, at the S. M. S. Medical College, Jaipur, developed bronchopulmonary moniliasis with pleural effusion. *Candida albicans* was isolated from the sputum, larynx, and left nostril [cf. **2**, No. 821]. A rapid improvement was effected by a course of mycostatin.

377. Brabander (J. O. W.), Blank (F.), & Butas (C. A.). **Intestinal moniliasis in adults.**—*Canad. med. Ass. J.*, **77**, pp. 478–483, 1957.

Seven representative cases are reported from the Royal Victoria Hospital, Montreal. The condition is characterized by heavy growth of *Candida* spp., particularly *C. albicans*, in stool cultures, together with all or some of the following symptoms: loose stools or diarrhoea, bleeding from the rectal mucosa, flatulence, formation of gas, distension, abdominal pains, pain in the rectum, and pruritus ani. Nystatin [mycostatin] gave excellent results, but relapse occurred as soon as the treatment was discontinued. The dramatic reduction or disappearance of *C. albicans* from the stool cultures following administration of mycostatin was a valuable aid to diagnosis.

At present gentian violet appears to be the most useful therapeutic agent, but clinical cure is achieved in a few cases only.

378. Gillam (J. F. E.) & Wadelton (D. H.). **A case of renal moniliasis.**—*Brit. med. J.*, **1**, 5077, p. 985, 1958. [*B.H.*, **33**, p. 662.]

After briefly reviewing renal moniliasis [cf. **2**, No. 356] details are given of a case associated with species of *Candida*, said not to be *C. albicans*, at the West Wales Hospital, Haverfordwest. The patient was an obese woman of 51, the active wife of a restaurateur.

379. Rüther (E.), Rieth (H.), & Koch (H.). **Die Bedeutung der Candidamykosen (Moniliasis) für Gynäkologie und Geburtshilfe.** [The significance of *Candida*

mycoses (moniliasis) in gynaecology and midwifery.]—*Geburtsh. u. Frauenheilk.*, **18**, 1, pp. 22–35, 1958.

At the Universität-Hautklinik, Hamburg-Eppendorf, *C. albicans* was demonstrated in the vaginal mucus of 74 of 200 patients with symptoms of mycotic vaginitis, 20 of 100 pregnant women without such symptoms, and 10 of 100 gynaecological patients without symptoms. Clinical features, differential diagnosis, and treatment are discussed.

380. González-Ochoa (A.) & Domínguez (L.). **Algunas observaciones epidemiológicas y patogénicas sobre la moniliasis oral del recién nacido.** [On some aspects of the epidemiology and pathogenicity of the oral moniliasis of the newborn.]—*Rev. Inst. Salubr. Enferm. trop.* (*Méx.*), **17**, 1, pp. 1–12, 1957.

The percentage incidence of oral moniliasis [*Candida albicans*] in the maternity wards at 2 hospitals in Mexico City was 4·6 (4·4 in full-term, 9·6 in premature babies) and 0·7 (0·13, 1·13). It is presumed that the low incidence at the second hospital is due to the use of cradles and to bottle feeding. The earliest cases appeared 3 days after delivery, most were recorded at 5–14 days.

381. Kozinn (P. J.), Taschdjian (Claire L.), & Wiener (H.). **Incidence and pathogenesis of neonatal candidiasis.**—*Pediatrics*, **21**, 3, pp. 421–429, 2 fig., 1958. [31 refs. Summary in Interlingua.]

Differences in the day of discharge, the size of the sample, and methods of diagnosis are regarded as largely accountable for the considerable variations in reports on the incidence of oral thrush (*Candida albicans*) at various institutions. Factors commonly listed as contributory, e.g. debility and prematurity, were not operative in the series of cases investigated at the Maimonides Hospital, Brooklyn, N.Y. [**3**, No. 267] nor was preceding antibiotic therapy responsible for a rise in numbers. The lack of resistance of newborn infants to infection of the mucous membrane by *C. albicans* is attributed to intrinsic defects in immunity which are not yet understood.

The primary source of the disease in infants appears to be vaginal infection in the mother, which should be treated by prophylactic therapy to prevent transmission. Infants infected at birth harbour the fungus for several days before clinical symptoms develop. These findings suggest the need for a revaluation of public health measures for the control of oral thrush in nurseries.

382. Kozinn (P. J.) & Taschdjian (Claire L.). **Oral thrush treated with lyophilized nystatin.**—*Antibiot. Ann., 1957–1958*, pp. 75–79, 1958.

At the Maimonides Hospital, Brooklyn, N.Y., oral thrush in 17 newborn infants, and in 3 older babies who had received antibiotic treatment, was treated daily with 16×10^5 units of lyophilized nystatin [mycostatin] in aqueous suspension. Eleven, including the 3 post-antibiotic cases, were clinically cured after an average of 10 days, and there was no recurrence. Seven others were clinically cured within a week, but experienced within 1 week–1 month relapses which responded well to a 2nd course of treatment. The remaining 2 cases could not be followed through. Lyophilized mycostatin is more readily soluble than the precipitated amorphous or crystalline product.

383. Feilchenfeld (E.). **Paronychia manum — die Gewerbekrankheit der Hausfrau.** [Paronychia manum—the occupational disease of the Housewife.]—*Z. Haut- u. Geschl-Kr.*, **24**, 1, pp. 17–18, 1958.

Of the new patients at dermatological clinics visited by the author at Tel-Aviv, Israel, during 1954–5, 10% were suffering from paronychia manum, and of these

90% were housewives. Fungi were observed in 60% and identified as *Candida albicans* in 50% of the cases, *Aspergillus niger* in 40%, and mixtures in 10%.

384. Floch (H.) & Mailloux (M.). **Onyxis et périonyxis à Candida.** [Onychia and perionychia due to *Candida*.] *Bull. Soc. Path. exot.*, **50**, 5, pp. 644–649, 1957.

Two cases of onychomycosis caused by *C. guilliermondii* in women were rapidly cured by courses of therapy with mycostatin at the Institut Pasteur, Cayenne, French Guiana.

385. Van Buren (J. M.). **Septic retinitis due to Candida albicans.**—*Arch. Path.*, **65**, 2, 7 fig. (2 col.), 1958. [44 refs.] [*B.H.*, **33**, p. 578.]

In this case of a 53-yr.-old female patient at Bethesda, Maryland, who had received large doses of antibiotics for the therapy of multiple myeloma with complications, the retinal lesions caused by *C. albicans* (which was cultured from the vagina at an early stage of the illness) apparently originated in the nerve-fibre layer. Two types of lesion have been observed, both in the present case and in previous reports of bacillary septicaemia and embolism. One is clearly inflammatory and seems to be adequately explained as a result of a septic embolus, while the other, perhaps more correctly termed 'Roth spot' (originally attributed to varicose degeneration in the nerve-fibre layer associated with a variety of constitutional diseases) is more localized and elicits a predominantly non-inflammatory response.

386. Farías (J. G.). **Algunos aspectos de la infección por Candida albicans y su tratamiento por la nistatina.** [Some aspects of infection by *Candida albicans* and of its treatment with nystatin.]—*Arch. Pediat. Uruguay*, **28**, 2, pp. 82–97, 1957.

Capsules containing nystatin [mycostatin] were administered orally to 13 patients with oropharyngeal moniliasis and to 1 with a diarrhoea attributed to *C. albicans*. The treatment was successful in 12 patients. A partial success was recorded in the other 2 patients who were cured after the topical use of a solution of gentian violet.

387. Mottet (E.). **Un dérivé de l'hexane, actif contre les Candida et utilisable en médecine.** [A derivative of hexane active against *Candida* spp. and utilizable in medicine.]—*C. R. Soc. Biol., Paris*, **151**, 8–9, pp. 1643–1646, 1958.

At the Laboratoire de Bactériologie et de Sérologie, University of Louvain, Belgium, the di-isothionate of di(amino-4-4′-diphenoxy) 1-6 hexane or 2535 RP, currently known as hexomedin, proved to be active *in vitro* against *C. albicans*, *C. krusei*, and *C. tropicalis*. After 24 hr. 22 of 42 strains were inhibited by less than 10 μg/ml., while none grew after 5 days with 25 μg/ml.

388. Ata (S.). **Zur Pathogenese und Trichomycin-Therapie der Candiasis.** [On the pathogenesis and trichomycin therapy of candidiasis.]—*Münch. med. Wschr.*, **99**, 5, pp. 187–191, 5 graphs, 1958. [English summary.]

Following a survey of the exogenous and endogenous factors concerned in the pathogenesis of moniliasis (*Candida albicans*), the author reports from the Bacteriological Institute, University of Nagoya, on the successful treatment of the disease in Japan by the oral administration of trichomycin [**3**, No. 274]. Thus, a complete cure was effected in 114 (81·9%) of the 138 cases treated during 1953–1956, while 10 (7·2) were improved.

Donomae & Kawamori [**2**, No. 2120] record 47 cases of internal moniliasis for the period 1950–54 of which 11 (23·4%) were generalized, 31 (66) involved the respiratory system, and 5 (10·6) the intestinal tract. Infection was primary in 13 (28·3) of the patients.

389. Fischer (G. W.) & Horbach (L.). **Untersuchungen über Promunität und Infektionsimmunität bei der experimentellen Soorinfektion.** [Studies on promunity and infection immunity in experimental thrush infection.]—*Arch. Hyg. Berl.*, **142**, 1, pp. 14–25, 9 graphs, 1958. [English and French summaries.]

A statistical analysis of the results of intraperitoneal inoculation experiments on mice with *Candida albicans* at the Institut für Hygiene und Mikrobiologie, Universität des Saarlandes, Homburg [**2**, No. 2128], did not support the hypothesis that two types of immunity exist, i.e. promunity or depression immunity and immunity following infection.

390. Ward (J. M.) & Nickerson (W. J.). **Respiratory metabolism of normal and divisionless strains of Candida albicans.**—*J. gen. Physiol.*, **41**, 4, pp. 703–724, 1 diag., 10 graphs, 1958.

At the Institute of Microbiology, Rutgers University, New Brunswick, the respiration of a normal strain of *C. albicans* was compared with that of a divisionless filamentous mutant previously described [**2**, No. 1297]. The process was found to be qualitatively similar in both strains and apparently unique among highly aerobic organisms in not being mediated by cytochrome oxidase. In the resting cells of both strains respiration was markedly stimulated by high concentrations of cyanide, carbon monoxide, and azide. Conversely, growth was inhibited by low concentrations of cyanide and azide. Although cytochrome bands could not be detected in thick cell suspensions treated with reducing agents, the incorporation of superoptimal levels of zinc and iron into the culture medium resulted in the development of cells with distinct cytochrome bands, the respiration of which remained insensitive to cyanide, carbon monoxide, and azide, while the bands persisted in a reduced form on oxygenation.

In the divisionless, but not in the normal strain, tetrazolium dyes compete with oxygen for reduction. The firmness with which hydrogen transfer is channelled in the normal strain for reduction of disulphide bonds (important in the division mechanism) and of oxygen is contrasted with the absence of such control from the mutant.

391. Tritsmans (E.) & Verstraete (J.). **Facteurs favorisant la formation de chlamydospores chez Candida albicans sur le milieu de Nickerson–Mankowski.** [Factors promoting the formation of chlamydospores in *Candida albicans* on the Nickerson–Mankowski medium.]—*C. R. Soc. Biol., Paris*, **151**, 8–9, pp. 1635–1637, 1958.

Abundant chlamydospore production by *C. albicans* on the Nickerson–Mankowski medium [**2**, No. 341] has been found at the Institut Provincial d'Hygiène, Antwerp, to depend on 3 factors, viz. dilution (opt. 15,625 yeast cells/ml.), use of a coverslip, and temperature (opt. 25° C.).

392. Rieth (H.), Ito (K.), & Schirren (C.). **Japan-Reis in der Hefe-Diagnostik.** [Japanese rice in yeast diagnosis.]—*Hautarzt*, **9**, 1, pp. 36–38, 2 fig., 1958.

At the Universitäts-Hautklinik, Hamburg, 2% rice agar proved useful in the rapid identification of *Candida albicans*. The agar plate is streaked with inoculum and a cover slip placed over the streak to provide semi-anaerobic conditions. Chlamydospore formation, observable directly through the slip, occurs in 1–2 days at room temp.

393. Simon (K.). **Synthetische Nährböden für anaskosporogene Hefen.** [Synthetic nutrient media for anascosporogenous yeasts.]—*Naturwissenschaften*, **45**, 1, pp. 21–22, 1958.

On a modified Czapek-Dox solution containing 3% saccharose *Candida albicans*

requires only 1 vitamin of the B group, any of those tested at a strength of 0·05% serving equally well. In contrast to methionine, cysteine is inadequate as an SH-donor. Chlamydospore production was promoted specially by methionine. Penicillin exerted no influence on growth, while LiCl gave rise to transient giant cells. On the above-mentioned medium supplements of 0·5% leucine or methionine, or 0·5% each of serine and methionine, acted more favourably on the development of *C. albicans* than they did on beer wort. On a medium of 100 g. of Czapek-Dox solution, 2 g. agar, 0·4 g. glycerin, 0·4 g. each of leucine and methionine, and 0·04 g. each of biotin and aneurin [vitamin B1] with fructose instead of saccharose or glucose, *Epidermophyton* Kaufman-Wolf [*Trichophyton interdigitale*] and *T. gypseum* [*T. mentagrophytes*] grew almost as well as on malt-peptone (Grütz III); the development of *E.* [*T.*] *rubrum*, *E. inguinale* [*E. floccosum*], and *Microsporum audouinii* was less abundant. *Achorion* [*T.*] *schoenleinii* and *A. quincke* [*T. quinckeanum*] also made good growth when glucose was substituted for fructose.

394. González-Ochoa (A.). **Monilias y moniliasis ; valoración de los diversos recursos para el diagnóstico de la moniliasis.** [*Monilia* and moniliasis; an evaluation of the various diagnostic procedures.]—*Rev. Inst. Salubr. Enferm. trop.* (*Méx.*), **17**, 1, pp. 13–21, 1957.

The criteria for the diagnosis of moniliasis are reviewed. The diagnosis of deep lesions not connected with mucous membranes may be based on a positive culture for *Candida* but a quantitative criterion is required in the other cases.

395. Fleury (C.). **Quelques observations sur la mycose expérimentale du Lapin à Candida albicans.** [Some observations on the experimental mycosis of the rabbit due to *Candida albicans*.]—*Arch. Sci. Genève*, **10**, 1, pp. 96–99, 1957.

The results of intravenous injections of 0·5 ml. of a suspension of *C. albicans* into rabbits weighing 1·5–2·5 kg. are described. The kidneys and bile ducts were attacked, while generalized anorexia was followed by death after 3–5 days. Two of the animals suffered from non-fatal disturbances of equilibrium and nystagmus.

396. Masshoff (W.) & Adam (W.). **Histomorphologie der experimentellen Candida-Infektionen.** [Histomorphology of experimental *Candida* infections.]—*Arch. klin. exp. Derm.*, **204**, 5, pp. 416–447, 8 fig., 1957.

This is a detailed report from the Pathologisches Institut and the Hautklinik, University of Tübingen, Germany, on the changes induced in the tissues of white mice, guinea-pigs, and rabbits by the subcutaneous and intratracheal injection of *C. albicans*. Subcutaneous inoculation results merely in localized lesions with no generalization of the infection. A strong and immediate haematogenous reaction of histiogenic cells disorganizes those of the fungus and inhibits their growth without causing complete sterility. Reproduction is effected mainly by budding and the organism is more frequently demonstrated by cultural than by histological methods.

The picture presented by pulmonary infection is quite different. The reaction is governed by proliferation of the local cells, modified only by circumscribed leucocytal infiltrations, often accompanied by the formation of small abscesses—the signs of chronic interstitial and alveolar pneumonia. The haematogenous reaction is linked with the sudden development of budding mycelia.

It is evident from these host responses that infection by *C. albicans* is of a mild order, its effects differing from those of an inanimate foreign body only in its capacity for reproduction.

397. Baena-Cagnani (C.) & Gallino (N.). **Moniliasis experimental en animales de laboratorio.** [Experimental moniliasis in laboratory animals.]—*Rev. méd. Córdoba*, **45**, pp. 131–148, 1957.

Some classical experiments on the pathogenic action of *Candida albicans* are repeated and discussed.

398. Gale (D.) & Sandoval (B.). **Response of Mice to the inoculations of both Candida albicans and Escherichia coli. I. The enhancement phenomenon.**—*J. Bact.*, **73**, 5, pp. 616–624, 4 graphs, 1957. Gale (D.) & Devesty (Geraldine). **II. The effect of the strain of mice.**—*J. infect. Dis.*, **101**, 1, pp. 48–50, 2 graphs, 1957.

I. At the Veterans' Administration Hospital, Albuquerque, New Mexico, prior inoculation of a non-lethal concentration of living *E. coli* intravenously or intraperitoneally protected mice from a lethal dose of *C. albicans*, given intravenously.

Injected i/p *E. coli* produced 2 contrary effects, depending on the concentration: (1) a protective effect expressed by a lengthening of the mean interval before death, and (2) an enhancing effect expressed by a shortening of the mean interval before death, as compared with mice receiving *C. albicans* alone. At all concentrations dead *E. coli* produced only the enhancing effect, attributed to toxaemia caused by an endotoxin. II. In further studies 2 inbred strains of white mice, TF (Taconic Farms) and Namru, differed markedly in their response to intravenous inoculation with *C. albicans*, as measured by time of death, which was significantly later on average in the former than in the latter.

Following i/p inoculation with *E. coli* both the enhancing and the protective effect were observed in the T.F. strains but neither was observed in the Namru strain.

399. Trenchi (H.). **Moniliasis de las aves.** [Moniliasis in birds.]—*Rev. Med. vet., Montevideo*, **9**, 56, pp. 95–98, 1956. [15 refs. Received 1957.]

From the Departamento de Avicultura, University of Montevideo, the author briefly describes the etiology, symptoms, lesions, course of the disease, diagnosis, control, and treatment of moniliasis in poultry caused by *Candida albicans*.

400. **Proceeding of the symposium on coccidioidomycosis, 1957.**—*Publ. Hlth Serv. Publ., Wash.*, **575**, 197 pp., numerous fig., 1957.

The papers read at this conference held at Phoenix, Arizona, on 11–13 Feb. 1957, are presented under 4 sections.

Section 1, covering clinical, pathological, and laboratory aspects of the disease, includes papers by C. E. Smith, D. Pappagianis, & Margaret T. Saito, 'The public health significance of coccidioidomycosis'; W. A. Winn, 'The clinical development and management of coccidioidomycosis'; D. B. Louria, N. Feder, & C. W. Emmons, 'The viability of the tissue phase of *Coccidioides immitis*'; W. L. Jellison & Hazel Parker, 'Survival of the pathogenic fungus *C. immitis* under CO_2 refrigeration' [wild rodents so preserved from the time of trapping were in good condition for examination for *C. immitis* after several months]; J. R. Schwarzmann, 'Coccidioidal bone infections'; R. W. Huntington, 'Diagnostic and biologic implications of the histopathology of coccidioidomycosis'; L. Ajello, '*C. immitis*; isolation procedures and diagnostic criteria'; C. E. Smith & Charlotte C. Campbell, 'Question and answer period on the serology of coccidioidomycosis'; and D. Pappagianis, C. E. Smith, Margaret T. Saito, & G. S. Kobayashi, 'Preparation and property of a complement-fixing antigen from mycelia of *C. immitis*'.

Section 2, dealing with the therapeutic and immunological aspects, comprises papers by D. W. Melick, 'The treatment of pulmonary coccidioidomycosis from a

surgical standpoint'; V. D. Newcomer, C. Halde, & T. H. Sternberg, 'Chemotherapy for coccidioidomycosis in man—review of recently employed antifungal agents' [prodigiosin, aromatic diamidines, isoniazid, ethyl vanillate, nystatin [mycostatin], and amphotericin]; M. J. Fiese, 'Therapy of coccidioidomycosis'; R. Cohen, 'Therapy of *C. immitis* infections'; M. L. Littman, 'Preliminary observations on the intravenous use of amphotericin B, an antifungal antibiotic, in the therapy of acute and chronic coccidioidal osteomyelitis'; and L. Friedman, 'Immunologic studies on coccidioidomycosis'.

Section 3, covering veterinary aspects, comprises papers by R. E. Reed, 'Non-fatal coccidioidomycosis of dogs'; C. J. Prchal, 'Coccidioidomycosis in Arizona cattle' [the disease is reportable in this State; a description is given of the lesions, always localized in the lungs and adjacent lymph nodes, seen at slaughter]; and K. T. Maddy, 'A study of 100 cases of disseminated coccidioidomycosis in the dog'.

Section 4 deals with epidemiological and ecological aspects with papers by K. T. Maddy, Irene L. Doto, M. L. Furcolow, P. H. Lehan, H. Rubin, J. C. Greene, E. Casper, & P. J. Coleman, 'Coccidioidin, histoplasmin, and tuberculin sensitivity of students in selected high schools and colleges in Arizona'; P. C. Hugenholtz, 'Skin test survey at Williams Air Force Base, Arizona' [of 188 fresh personnel negative to the coccidioidin test on arrival, 44 became positive within a year]; J. T. Scogins, 'Comparative study of time loss in coccidioidomycosis and other respiratory diseases' [upper respiratory infections, pneumonias, and infectious mononucleosis are compared with coccidioidomycosis in terms of working days lost at an Air Force base in Arizona]; P. G. Hugenholtz, 'Climate and coccidioidomycosis'; K. T. Maddy, 'Ecological factors possibly relating to the geographic distribution of *C. immitis*' [the endemic areas correspond closely to the distribution of the creosote bush, *Lanea tridentata*, one of the principal indicator plants used in delimiting the 'lower Sonoran life zone']; O. A. Plunkett & F. E. Swatek, 'Ecological studies of *C. immitis*'; F. E. Swatek & O. A. Plunkett, 'Ecological studies on *C. immitis*. Experimental infections of wild rodents and animals other than mammals' [numerous rodents were susceptible to intraperitoneal inoculation, but in nature infection appeared to be restricted to 2 burrowing species, the kangaroo rat (*Dipodomys* sp.) and the pocket mouse (*Perognathus* sp.). These would not constitute a significant reservoir of infection. Experimental infections were established in crayfish (*Cambarus* sp.), goldfish (*Carassius* sp.), and lizards (*Sceloporus* spp.)]; Ann F. Elconin, R. O. Egeberg, & R. Lubarsky, 'Growth patterns of *C. immitis* in the soil of an endemic area'; and Carroll E. Palmer, Phyllis Q. Edwards, & W. E. Allfather, 'Characteristics of skin reactions to coccidioidin and histoplasmin with evidence of an unidentified source of sensitivity in some geographic areas'.

Section 5, on cultural and cytological studies, includes contributions by B. S. Henry & Elizabeth M. O'Hern, 'The production of spherules in a synthetic medium of *C. immitis*'; and Elizabeth M. O'Hern & B. S. Henry, 'An electron microscope study of *C. immitis*'.

401. Littman (M. L.), Horowitz (P. L.), & Swadey (J. G.). **Coccidioidomycosis and its treatment with amphotericin B.**—*Amer. J. Med.*, **24**, 4, pp. 568–592, 8 fig., 1 graph, 1958.

This is a joint report from the Mount Sinai and Bronx Veterans' Administration Hospitals, New York, on the successful results of the intravenous administration of amphotericin B [**3**, No. 194] in 4 cases of infection by *Coccidioides immitis*, 2 involving the knee and 2 pulmonary. Unduly high or frequent doses appeared primarily to affect the kidneys. This mode of therapy produced adequate blood-serum levels of amphotericin B, a maximum of 1·8 μg/ml. being attained with doses of 1·2 μg/kg. daily. Eight human isolates of *C. immitis* were inhibited *in vitro*

by 0·5 μg/ml. of the antibiotic. A fall in the complement-fixation titre for coccidioidomycosis occurred during and after therapy.

402. Melick (D. W.). **The surgical treatment of pulmonary coccidioidomycosis with a comprehensive summary of the complications following this type of therapy.**—*Amer. Rev. Tuberc.*, **77**, 1, pp. 17–21, 1958. [Spanish and French summaries. *T.D.B.*, **55**, p. 577.]

Data relating to 400 cases of coccidioidomycosis (*Coccidioides immitis*) treated by surgery were assembled from the replies to questionnaires circulated in 1950 and 1953. Within this group the over-all complication rate was 13%; in the author's 54 cases included therein it was 18%. When complications do occur they may be expected to become severe in half the cases.

403. Ward (J. R.) & Hunter (R. C.). **Disseminated coccidioidomycosis demonstrated by needle biopsy of the liver.**—*Ann. intern. Med.*, **48**, 1, pp. 157–163, 3 fig., 1958. [Spanish summary. 25 refs.]

An unusual feature of the case herein reported, a 24-yr.-old patient at the William Beaumont Army Hospital, Fort Bliss, Texas, was the demonstration of *Coccidioides immitis* by needle biopsy of the liver.

404. Klatzo (I.) & Geisler (P. H.). **Demonstration of Cryptococcus neoformans in polarized light.**—*Stain. Technol.*, **33**, 1, pp. 55–56, 1 col. fig., 1958. [*B.H.*, **33**, p. 618.]

At the National Institutes of Health, Bethesda, Maryland, *C. neoformans* was demonstrated in sections with unusual clarity by staining for 15–30 min. in 1 g. cresyl violet buffered to pH 3·5 with 3 ml. acetic acid and 0·205 g. sodium acetate in 1000 ml. distilled water. The material is then differentiated in 95% alcohol for 1–3 min., dehydrated in 3 changes of absolute alcohol, and mounted in permount.

405. Kao (C. J.) & Schwarz (J.). **The isolation of Cryptococcus neoformans from pigeon nests. With remarks on the identification of virulent cryptococci.**—*Amer. J. clin. Path.*, **27**, 6, pp. 625–663, 5 fig., 1957. [*B.H.*, **33**, p. 74.]

The authors record the isolation of *C. neoformans* from pigeons' nests on 9 premises in the region of Cincinnati [cf. **2**, No. 1803]. All isolates were morphologically and physiologically very similar and although all were pathogenic for mice not all were lethal. The latter, which are distinguished as 'var. innocuous', differed from the more pathogenic isolates by an inability to grow at 37° C. and by making good growth on KNO_3 medium and relatively poor growth on galactose medium.

406. Földvari (F.). **Blastomycose profonde et épithélioma spinocellulaire.** [Deep blastomycosis and spinocellular epithelioma.]—*Ann. Derm. Syph., Paris*, **85**, 1, pp. 41–42, 2 fig., 1958.

Cryptococcus neoformans was isolated in pure culture, after several attempts over an 8-month period, from infiltrating lesions on the buttocks of a 46-yr.-old male in Budapest, Hungary. Infection had originated 10 yr. previously, and 4 yr. after the isolation of the fungus, when the patient re-entered the clinic, the right buttock was completely infiltrated and an extensive ulceration had developed over the surface.

407. Ajello (L.). **Occurrence of Cryptococcus neoformans in soils.**—*Amer. J. Hyg.*, **67**, 1, pp. 72–77, 1958. [*B.H.*, **33**, p. 580.]

At the Communicable Disease Center, Atlanta, Georgia, *C. neoformans* was isolated from 14 of 1,127 soil samples examined for the presence of human pathogenic fungi [cf. **2**, No. 1722]. The infective material came from Alabama, Georgia,

Maryland, Kentucky, Tennessee, and the island of Kavai, Territory of Hawaii. Ten of the isolates were from places frequented by chickens and pigeons [**2**, No. 1803].

408. Nevill (L. M. B.). **Cryptococcal meningitis.**—*Brit. med. J.*, **1**, 5075, p. 887, 1958.

Since 1955 10 cases of meningitis or epilepsy due to *Cryptococcus neoformans* have been confirmed in government hospitals in Kenya. The last 2 cases were successfully treated with actidione (cycloheximide) and polymyxin.

409. McConchie (I. H.) & Hayward (J. I.). **Torula histolytica (Cryptococcus neoformans) granuloma of the lung treated by pulmonary resection.**—*Postgrad. med. J.*, **34**, 390, pp. 190–194, 4 fig., 1958. [12 refs.]

In 3 of the 4 cases herein reported from the Royal Melbourne Hospital the diagnosis was established before operation; the remaining patient was treated by pulmonary resection for a circumscribed opacity of unknown origin in his chest X-ray. Chest symptoms not usually associated with torulosis were present in 3 patients—haemoptyses in 2 and purulent sputum in 1.

One of the 2 patients who were also suffering from cryptococcal meningitis before operation remained well for 6 yr. after treatment, but in the other the cerebral condition deteriorated rapidly in the 4 months following resection.

410. Plummer (N. S.), Symmers (W. S.), & Winner (H. I.). **Sarcoidosis in identical twins; with torulosis as a complication in one case.**—*Brit. med. J.*, **2**, 5045, pp. 599–603, 5 fig., 1957. [41 refs.]

Detailed case reports from Charing Cross Hospital and Medical School, London, are followed by interesting comment and discussion. One twin recovered, but the twin with torulosis as a complication, an estate agent aged 35, developed cryptococcal osteitis of the scapula and this is thought to have been manifest before a course of cortisone was started as treatment for sarcoidosis. *Cryptococcus neoformans* was isolated from a subcutaneous pseudo-abscess which formed over the bone and the patient died of cryptococcal meningitis 32 months after his first admission to hospital. Treatment with mycostatin and 2-hydroxystilbamidine was unavailing, though the organism isolated from the cerebrospinal fluid was sensitive to these *in vitro*. Post-mortem examination showed infection of the meninges, liver, and spleen and *C. neoformans* cultured from these was pathogenic to laboratory animals. This is stated to be the 19th case of torulosis in England.

411. Seeliger (H. P. R.) & Christ (P.). **Zur Schnelldiagnose der Cryptococcus-Meningitis mittels der Liquorpräzipitation.** [Rapid diagnosis of *Cryptococcus* meningitis by means of a precipitin test.]—*Mykosen*, **1**, 3, pp. 88–92, 1 fig., 1958.

From the Hygiene-Institut der Rheinischen Friedrich-Wilhelms-Universität, Bonn, is reported a case of meningitis in a 36-year-old woman, diagnosed by demonstration of the fungus in the cerebrospinal fluid. Undiluted or diluted 1/5, it was strongly positive to the precipitin test [**1**, No. 2255] using *C. neoformans* antiserum of capsule Type A (to which the strain in question belonged), and weakly positive also to *C. laurentii* serum. The authors conclude that at least in some cases of massive infection the precipitin test can provide a diagnosis of this condition.

412. Emmons (C. W.) & Campbell (Charlotte C.). **Histoplasmosis in the District of Columbia, Maryland, and Virginia.**—*Clin. Proc. Child. Hosp.* (*Wash.*), **13**, 11, pp. 225–235, 1957.

At the National Institute of Allergy and Infectious Diseases, Bethesda, Maryland, *Histoplasma capsulatum* was isolated from soils from 22 premises in the above-

mentioned States. Many of the 52 culturally verified or serologically presumptive cases of the disease reported in this paper had been exposed to these soils. In view of the evidence that histoplasmosis in this eastern area may be frequently overlooked or misdiagnosed there is little reason for assuming that the acquisition of the disease is necessarily linked with residence, recent travel, or military service in the central United States.

413. Edwards (Lydia B.), Peeples (W. J.), & Berger (Anne G.). **Prevalence of sensitivity to tuberculin and histoplasmin among high school students in Montgomery County, Maryland.**—*Pediatrics*, **21**, 3, pp. 389–396, 2 graphs, 1 map, 1958.

A survey of more than 3,200 students (av. age 16) for tuberculin and histoplasmin sensitivity was made during the spring term of 1957 by skin tests and roentgenography. The proportion of positive reactors to histoplasmin ranged from 14% in the suburban schools to over 60% in the rural N.W., whereas only 3% were sensitive to tuberculin. Pulmonary calcifications were most frequent in histoplasmin-positive subjects (57 of 68, or 84%) and also occurred in 6 sensitive to both antigens, but they were absent in those giving a positive response to tuberculin only.

414. Walls (K.), Furcolow (M. L.), & Lehan (P. H.). **Histoplasmosis as a problem in tuberculosis sanatoriums throughout the United States.**—*J. Lab. clin. Med.*, **51**, 2, pp. 266–270, 1958. [*B.H.*, **33**, p. 468.]

Serological surveys for histoplasmosis (*Histoplasma capsulatum*) have now been completed in 22 sanatoria in 15 States extending from New York to Arizona. The histoplasmin complement-fixation tests yielded positive results in 196 out of 9,774 patients (2%) and the yeast-phase antigens 340 out of 5,311 (6·4%). The majority of positive reactors were distributed in sanatoria from Kansas to Maryland. A further refinement of the yeast-phase antigen criterion appears to be necessary.

415. Furcolow (M. L.) & Ney (P. E.). **Epidemiologic aspects of histoplasmosis.**—*Amer. J. Hyg.*, **63**, 3, pp. 264–270, 1 graph, 1957. [*B.H.*, **32**, p. 856.]

At the Communicable Disease Center, Kansas City, information obtained from the parents of 6,978 children at the Kansas City public schools [cf. **2**, No. 1261], by means of a questionnaire relating to exposure to possible sources of *Histoplasma capsulatum* infection, was examined in the light of the children's response to the histoplasmin skin test. The incidence of positive reactions was markedly higher in children having contact with farm life, but could not be attributed to contact with particular farm animals. Of a group of 144 positives who had never lived on or visited a farm a high proportion were resident in the N.W. part of the city, a poor quarter with much dilapidated property and many railway yards known to harbour numerous pigeons and starlings, whose excrement may have been the source of infection. The hypothesis of airborne transmission of infection was neither proved nor disproved, but if it occurs it appears to account for 10% or less of the infections in Kansas City, chosen as a representative town in an endemic area. The calculation of 'risk indices', expressing the likelihood of contracting the infection in a given environment, is discussed.

416. Anderson (N. W.), Doto (Irene D.), & Furcolow (M. L.). **Clinical X-ray and serologic changes with Histoplasma infection.**—*Publ. Hlth. Rep., Wash.*, **73**, 1, pp. 73–82, 2 fig., 1 diag., 1958. [*B.H.*, **33**, p. 468.]

These studies on *H. capsulatum* [see preceding entries] covered the period 1953–55 and involved 2,872 children of the U.S. Army personnel stationed at Fort Leaven-

worth, Kansas. Of 2,662 who reacted negatively to the 1st histoplasmin skin test, 68 (designated 'converters') were positive on 2nd examination 5–8 months later.

Illness accompanying infection was too infrequent to be separated from the routine upper respiratory diseases occurring among the controls, but there was a higher prevalence of chest lesions demonstrated by X-rays, among the 'converters'. The incidence of positive reactions to serological tests was also higher in the latter group. Predisposing factors included residence outside the station area, visits to farms, and contact with pigeons or their excreta.

417. Rubin (H.), Lehan (P. H.), & Furcolow (M. L.). **Severe nonfatal histoplasmosis : report of a typical case, with comments on therapy.**—*New Engl. J. Med.*, **257**, 13, pp. 599–602, 4 fig., 1 graph, 1957. [*B.H.*, **33**, p. 126.]

This is a full report of the case-history of a 49-yr.-old man who contracted infection by *Histoplasma capsulatum* while cleaning out a chicken coop containing infected faeces.

418. Edge (J. R.). **Pulmonary histoplasmosis.**—*Brit. J. Tuberc.*, **52**, 1, pp. 45–52, 2 fig., 2 maps, 1958. [*B.H.*, **33**, p. 467.]

From the North Lonsdale Hospital, Barrow-in-Furness, Lancs., the author describes the case of a 55-yr.-old woman, resident in Ohio 1926–34, who developed scattered infiltrates and fibrotic changes throughout both lungs and reacted strongly to histoplasmin. A long period of respiratory crippling was followed by death from cor pulmonale: pathological examination of the lungs revealed fibrosis with emphysema. Her husband, who also lived in Ohio for the same period, was found to have scattered calcifications in the right lung and calcified hilar gland, with a very strong positive histoplasmin reaction but no symptoms of illness.

It is concluded that these changes, detected by radiology, are a sequel to infection by *Histoplasma capsulatum* during residence in the United States. The extensive studies of histoplasmosis in the United States are briefly reviewed.

419. Depoux (R.) & Merveille (P.). **Note sur l'histoplasmose à grandes formes en A.É.F.** [A note on large-form histoplasmosis in French Equatorial Africa.]—*Sem. Hôp. Paris*, **33**, 49–50, pp. 2986–2990, 4 fig., 1957.

Details are given of 2 cases of histoplasmosis (*Histoplasma duboisii*) [**3**, No. 116] affecting male natives in the region of Lake Tchad. In both, the lesions (which were peripheral) contained numerous yeast cells 7–15 μ diam. Inoculations of mice and guinea-pigs with pus gave rise to local lesions in the latter and to visceral, especially splenic, abscesses in the former. Cultures of the mycelial stage produced brownish-white, downy colonies consisting of branched, segmented hyphae with smooth-walled chlamydospores which became tuberculate in 15–30 days.

The authors prefer to speak of 'large' and 'small', rather than of African and American forms of the organism, respectively, and agree with Mariat & Segretain [**2**, No. 2096] that the large forms, differing from *H. capsulatum* only in a few secondary characters, should be treated as a variety, *H.c.* [var.] *duboisii*, of *H. capsulatum*.

420. Lucasse (C.) with the co-operation of J. J. M. Duquenoy & A. E. Otten. **Intradermoreacties met histoplasmine bij de Congolese bevolking in vergelijking met coccidioidine, blastomycine en tuberculine.** [Intradermal reactions to histoplasmin in the Congolese population in comparison with coccidioidin, blastomycin, and tuberculin.]—*Ann. Soc. belge. Méd. trop.*, **37**, 5, pp. 647–677, 1957. [English summary.] [*B.H.*, **33**, p. 580.]

Of a total of 2,497 Africans tested in the Equatorial Province, Belgian Congo, 253

(10·1%) reacted positively to histoplasmin [**2**, No. 793]. The 1,540 men comprised 177 positives (11·5%) and the 957 women 76 (7·9). In both sexes the 21–30-yr. age group contained the largest number of cases. Among 10 groups of skilled workmen occupied mostly in dusty surroundings, carpenters and farm-hands yielded most positive reactors (19 of 154 (12·3%) and 18 of 152 (11·8%), respectively). An analysis of the geographical distribution of the positive reactors revealed the maximum incidence in Coquilhatville region. It is postulated from these data that histoplasmosis (*Histoplasma duboisii*) does occur in the African population of the Equatorial Province.

The comparative tests with coccidioidin were uniformly negative and there were only a few (non-specific) reactors to blastomycin.

421. Halawani (A.) & El-Sayed (M. H.) **Report on histoplasmosis in Egypt.**—*J. Egypt. med. Ass.*, **40**, 8, pp. 553–556, 3 fig., 1957. [*B.H.*, **33**, p. 662.]

Two cases of histoplasmosis (*Histoplasma capsulatum*) are reported from the Institute of Research and Tropical Medicine, Cairo. In the 1st, an Englishman suffering from ulceration and paralysis, the organism was detected in the ulcers and it is thought that the central nervous system may also have been involved. In the 2nd, a 27-yr.-old Egyptian farmer whose death was due to cancer, the fungus was present in the bladder epithelial cells, the cancer cells, and the bone marrow.

422. Davies (Patience). **A fatal case of histoplasmosis contracted in Kenya.**—*E. Afr. med. J.*, **34**, 10, pp. 555–557, 1957. [*B.H.*, **33**, p. 234.]

The organism isolated from this case, a 2½-yr.-old American girl resident in Kenya, was not quite typical of *Histoplasma capsulatum* and may have been *H. duboisii*.

423. Nino (F. L.). **Dos nuevas observaciones de histoplasmosis en la República Argentina.** [Two new cases of histoplasmosis in Argentina.]—*Pren. méd. argent.*, **44**, 32, pp. 2508–2512, 1957.

The patients showed oropharyngeal lesions which healed after the oral administration of sulphadiazine. So far 28 cases of histoplasmosis (*Histoplasma capsulatum*) have been diagnosed in Argentina.

424. Pollak (L.) & Campins (H.). **El suelo como fuente de infección en histoplasmosis. Síntesis de los casos estudiados en Venezuela.** [The soil as a source of histoplasmosis. Review of the cases recorded in Venezuela.]—*Hoja tisiol.*, **17**, 3, pp. 181–190, 3 fig., 1957.

The authors summarize their previous records of infection by *Histoplasma capsulatum* contracted in a cave (**2**, No. 1829). A new case is described of a patient who contracted the infection during a visit to the same cave.

425. Greendyke (R. M.) & Emerson (G. L.). **Occurrence of Histoplasma in solitary nodules in a non-endemic area.**—*Amer. J. clin. Path.*, **29**, 1, pp. 36–42, 4 fig., 1958. [Summary in Interlingua.] [*B.H.*, **33**, p. 662.]

Observations are presented from the University of Rochester School of Medicine, New York, on the clinical aspects and gross and microscopic pathology of 20 specimens of resected pulmonary, fibro-caseous granulomata containing *H. capsulatum*.

The use of histoplasmin skin tests is urged in the routine study of patients with solitary pulmonary nodules. The methenamine-silver-nitrate technique (*Amer. J. clin. Path.*, **25**, pp. 975–979, 1955) proved superior to PAS for the demonstration of the fungus in lung nodules.

426. González-Ochoa (A.). **Histoplasmosis pulmonar aguda primaria.** [Primary acute pulmonary histoplasmosis.]—*Gac. méd. México*, **87**, 10, pp. 733–744, 1957.

The author refers to several epidemic outbreaks of pulmonary ailments among visitors to and workers in abandoned mines and caves. It is presumed from skin testing with histoplasmin that these cases are due to *Histoplasma capsulatum*. The complement fixation test was also positive in some patients and *H. capsulatum* could be cultivated from one. It is thought that the dung of bats used as manure is the source of infection.

427. Abello (J.). **Histoplasmose avec abcès multiples du poumon. Guérison.** [Recovery from histoplasmosis with multiple lung abcesses.]—*Pr. méd.*, **66**, 14, pp. 285–289, 9 fig., 1958.

The 3rd recorded case of histoplasmosis (*Histoplasma capsulatum*) in Spain is reported from the École de Phthisiologie and the Sanatorium Helos Guadarrama, Madrid. Chest X-rays of the 19-yr.-old girl showed multiple lung abcesses, and the fungus was demonstrated in the sputum, bile, and urine. The lung picture cleared rapidly on treatment with delta-cortisone and cure was apparently complete.

The origin of the infection is obscure, as members of the patient's family showed no reaction to histoplasmin and attempts to isolate *H. capsulatum* from her home surroundings were unsuccessful.

428. Sutliff (W. D.). **Experience with the course and chemotherapy of chronic pulmonary histoplasmosis.**—*Amer. Rev. Tuberc.*, **75**, 6, pp. 912–920, 6 fig., 1957. [Spanish and French summaries. *B.H.*, **33**, p. 234.]

The clinical manifestations in 23 cases (4 fatal) of chronic pulmonary histoplasmosis (*Histoplasma capsulatum*) [**2**, Nos. 537, 2442, and below] are described in this report, covering 1951–56, from the Veterans' Administration Hospital (Kennedy Division), Memphis, Tennessee. All the patients were males aged 33–73, 17 being farmers and 1 a negro, and the average duration of the illness was 58·4 months. One case was characterised by gradual onset and another by advanced pulmonary changes. Specific therapy was applied to 13 patients. Only in 1 relatively mild chronic case was a definite improvement effected by the administration of beta-di-ethyl-aminoethyl fencholate, but the same compound and ethyl vanillate were each efficacious in 2 cases of the disseminated form.

429. Baum (G. L.), Bernstein (I. L.), & Schwarz (J.). **Broncholithiasis. Produced by histoplasmosis.**—*Amer. Rev. Tuberc.*, **77**, 1, pp. 162–167, 4 fig., 1958. [Spanish and French summaries.]

Expectorated broncholiths were observed in 2 cases of infection by *Histoplasma capsulatum* at the Jewish Hospital, Cincinnati, Ohio. The therapeutic and prognostic implications of this finding are indicated.

430. Schubert (J. H.) & Ajello (L.). **Variation in complement fixation antigenicity of different yeast phase strains of Histoplasma capsulatum.**—*J. Lab. Clin. Med.*, **50**, 2, pp. 304–307, 1957.

In further studies at the Communicable Disease Center, Atlanta, Georgia [**2**, No. 84], histoplasmin samples prepared from 11 strains of *H. capsulatum* in the yeast phase were examined by titration against rabbit hyperimmune sera and human immune sera. There was considerable variation in antigenic potency from strain to strain, revealed by parallel results with both sera. Hyperimmune rabbit sera may thus be used as control sera in the determination of the optimum yeast phase antigen dilutions.

The authors recommend that a large number of strains be screened for suitability for histoplasmin production.

431. Jones (R. W.), Rebell (G.), & Huffman (M. N.). **3 β-Methoxy-5-androsten-16 β-ol : a cytostatic and fungistatic steroid.**—*Nature, Lond.*, **181**, 4601, pp. 48–49, 1958.

This substance is the most active of the fungistatic steroids so far tested by the authors at the School of Medicine, University of Oklahoma. At 1 p.p.m. it inhibits the growth of 3 strains of *Histoplasma capsulatum* on Difco Sabouraud dextrose agar, an effect slightly superior to that of stilbamidine di-isethionate.

432. Baum (G. L.), Schwarz (J.), & Wang (C. J. K.). **Treatment of experimental histoplasmosis with amphotericin B.** *Arch. intern. Med.*, **101**, 1, pp. 84–86, 1 graph, 1958. [*B.H.*, **33**, p. 347.]

In this joint contribution from the Jewish and General Hospitals, Cincinnati, Ohio, it is reported that the percentages of hamsters inoculated with *Histoplasma capsulatum* surviving 64 days after treatment with 1 mg. amphotericin B daily and the same + 30 mg. sulphadiazine sodium were 73 and 77, respectively, compared with 4 for the untreated controls.

433. Lehan (P. H.), Furcolow (M. L.), Brasher (C. A.), & Larsh (H. W.). **Therapeutic trials with the newer antifungal agents.** *Antibiot. Ann., 1956–1957*, pp. 467–469, 1957.

Of a number of antifungal agents used at the Missouri State Sanatorium, Kansas City, in an attempt to arrest the disease in 37 cases of progressive histoplasmosis (*Histoplasma capsulatum*), stilbamidines, disulfiram, nystatin, and 8 diethylaminoethyl fencholate were ineffective. Details are presented of 2 cases in which good recovery was made following treatment with amphotericin B and 1,2 bis (*p* [*n*-hexyl methylaminomethyl] phenoxy) ethane dichloride, respectively. Further therapeutic trials with these last-mentioned are under way. Four cases of progressive blastomycosis (*Blastomyces dermatitidis*) were cured with 2 hydroxy-4,4¹ stilbene dicarboxamide isethionate, though in one of them a 2nd course of therapy was necessary.

434. Pine (L.). **Studies of the growth of Histoplasma capsulatum. III. Effect of thiamin and other vitamins on the growth of the yeast and mycelial phases of Histoplasma capsulatum.**—*J. Bact.*, **74**, 2, pp. 239–245, 3 fig., 1957.

A comparison of the mycelial and yeast phases of *H. capsulatum* at the National Institutes of Health, Bethesda, Maryland, showed that while no single vitamin was required by the mycelial phase at 25° C. 8 of 11 isolates of the yeast phase required thiamin for max. growth at 37° C.

435. Pine (L.) & Peacock (C. L.). **Studies on the growth of Histoplasma capsulatum. IV. Factors influencing conversion of the mycelial phase to the yeast phase.**—*J. Bact.*, **75**, 2, pp. 167–174, 1958. [15 refs.] [*B.H.*, **33**, p. 706.]

From further studies [see above] on *H. capsulatum* it was concluded that the conversion of mycelial to yeast phase *in vitro* depended on the satisfaction of the growth requirement of the yeast phase [loc. cit.] and the inhibition of the growth of the mycelial phase without inhibition of conversion to the yeast phase. The mycelial phase is strongly inhibited by the presence of citrate at 30 and 37° C. while the yeast phase is stimulated by citric acid. Ca and Mg reverse the effect of citric acid in mycelial growths at 30° and at 37°. Mg stimulates the growth of both mycelium and yeast and conversion to the yeast phase, and Ca inhibits conversion to yeast phase and stimulates mycelial growth. The yeast phase can infect the toad (*Bufo marinus*) at 25°, but 35° is inhibitory.

436. González-Ochoa (A.) & Dominguez-Soto (L.). **Blastomicosis sudamericana. Casos mexicanos.** [South American blastomycosis. Mexican cases.]—*Rev. Inst. Salubr. Enf. trop. (México)*, **17**, 3, pp. 97–104, 1957.

Three cases of South American blastomycosis (*Paracoccidioides brasiliensis*) have been diagnosed in Mexico. The 3 patients acquired the infection in the State of Vera Cruz. In 1 case, reported in 1950, the diagnosis was made during a pulmonary phase without oropharyngeal lesions. It is probable from the clinical record that there was a similar evolution in the 3rd case.

437. Pereira-Filho (M. J.). **Os fungos da doença de Adolfo Lutz, da doença de Jorge Lobo e o da blastomicose dos Indios do Alto Xingu (Brazil Central–Estado do Mato Grosso).** [The fungi of the disease of Adolfo Lutz, of the disease of Jorge Lobo, and that of the blastomycosis of the Indians of Alto Xingu (Central Brazil—State of Mato Grosso).]—*Rev. Méd. Rio Grande do Sul*, **14**, 79, pp. 10–64, 44 pl. (4 col.), 1957. [French and English summaries. 67 refs.]

On the basis of his own observations and a study of the literature the author divides the South American blastomycoses into 2 groups, one caused by *Paracoccidioides brasiliensis* and the other by *Glenosporella loboi* [**3**, No. 30]. The clinical and mycological aspects of the associated diseases are described. To the 2nd group belongs a disease of the Alto Xingu Indians characterized by atrophy of the nodules and tubercles associated with Jorge Lobo's disease, resulting in a clinical picture reminiscent of lepra tuberculoides. It is thought that a new species or variety, closely related to *G. loboi* but distinct from *P. brasiliensis*, may be involved in the etiology of this condition.

438. Escudero (J.), Urteaga (O.), Acosta (R.), Rosell (V.), Romero (O.), & Herrera (R.). **Blastomicosis bilateral caseosa de las suprarrenales con cuadro de insuficiencia glandular.** [Bilateral caseous blastomycosis of the suprarenal glands and clinical syndrome of glandular insufficiency.]—*Arch. peru. Pat. Clín.*, **11**, pp. 1–20, 1957.

A case of South American blastomycosis from which *Paracoccidioides brasiliensis* was cultivated is described. The patient showed oropharyngeal and pulmonary lesions which for several years were considered tuberculous. A sulphonamide, 'gantrisin', was administered and the oropharyngeal lesions improved but the patient died. Important lesions of the suprarenal glands were observed at the necropsy. About 20 cases of S. American blastomycosis have been diagnosed in Peru.

439. Niño (F. L.) & Freire (R. S.). **Existencia de un foco endémico de rinosporidiosis en la Provincia del Chaco.** [The presence of an endemic focus of rhinosporidiosis in the Province of Chaco.]—*Pren. méd. argent.*, **44**, 38, pp. 2914–2919, 1957.

Nine cases of nasal polyps were found among an undetermined number of equines on a farm. *Rhinosporidium seeberi* was found in 8. Rhinosporidiosis has been diagnosed 26 times in domestic animals and 16 times in man in Argentina. One third of the cases are from the Chaco.

440. Duperrat (B.) & Netter (A.). **Rhinosporidiose.** [Rhinosporidiosis.]—*Sem. Hôp. Paris*, **33**, 49–50, pp. 2973–2974, 1957.

An expanded account of 2 cases of rhinosporidiosis [*Rhinosporidium seeberi*] studied by the authors in southern Vietnam [**3**, No. 17].

441. Steele (W. L.). **Sporotrichosis infection of the knee joint : report of a case.**—*Sth. med. J.*, **51**, 3, pp. 373–379, 10 fig., 1958.

The interest in this case of infection by *Sporotrichum schenckii* in a 48-yr.-old

negro mason of Little Rock, Arkansas, lies in the absence of both cutaneous symptoms and dissemination of the fungus. Sporotrichosis is regarded as of major industrial economic importance in U.S.A., where it affects primarily agricultural or manual workers. Healing of the wound after arthrotomy was delayed until the institution of a course of potassium iodide. The organism developed in 3 weeks on Sabouraud's medium, both at room temp. and 37° C., from the reddish-yellow fluid removed from the knee joint at operation.

442. Haggerty (T. E.) & Zimmerman (L. E.). **Mycotic keratitis.**—*Sth. med. J.*, **51**, 2, pp. 153–159, 7 fig., 1958.

To illustrate the current increase in the incidence of corneal mycosis the authors report 3 cases from the Registry of Ophthalmic Pathology, Armed Forces Institute of Pathology, Washington, D.C., one attributed to *Candida albicans* in a 66-yr.-old diabetic woman and the others to *Aspergillus* sp. There is considered to be abundant evidence that the increasing frequency of such infections is etiologically related to the widespread use of antibiotic and corticosteroid preparations in the therapy of eye diseases.

443. Greetham (J. S.) & Makley (T. A.). **Intraocular fungus infection following cataract extraction.**—*Arch. Ophthal., N.Y.*, **58**, 5, pp. 558–561, 2 fig., 1957.

The histological findings in a case of intra-ocular infection by a species of *Aspergillus*, *Candida*, or *Cladosporium* following cataract extraction in a 71-yr.-old male are reported from the University College of Medicine, Columbus, Ohio.

444. Guze (L. B.) & Haley (L. D.). **Fungus infections of the urinary tract.**—*Yale J. Biol. Med.*, **30**, 4, pp. 292–305, 1 fig., 1958.

Of 1,500 urine specimens examined at the Wadsworth Veterans' Administration Hospital, Los Angeles, California, 15 were found to contain significant numbers of fungi/ml., including *Torulopsis glabrata*, *Candida krusei*, *C. stellatoidea*, *C. albicans*, and *C. tropicalis*. Of the patients, 9 were suffering from diabetes mellitus and 12 had received antibiotics during the preceding year. The symptoms and clinical course of mycoses of the urinary tract are indistinguishable from those of bacterial origin, and the differential diagnosis depends on careful examination of the urine.

445. Riddell (R. W.) & Clayton (Yvonne M.). **Pulmonary mycoses occurring in Britain.**—*Brit. J. Tuberc.*, **52**, 1, pp. 34–44, 8 fig., 1958. [40 refs. *B.H.*, **33**, p. 467.]

At the Brompton Hospital, London, *Candida albicans* was much the most frequent species of yeast cultured from the sputa of 1,060 patients, occurring in 425 (40%), followed by *Torulopsis glabrata* in 50 (4·7), and *C. tropicalis* in 46 (4·3); within the same group 55 (4·7%) harboured *Aspergillus fumigatus*. The literature on pulmonary mycoses is critically reviewed.

446. Ichaporia (R. N.). **Fungus infections of lungs.**—*J.J.J. Group Hosp.*, **3**, 1, pp. 1–5, 11 fig., 1958.

During the last 4 yr. the author has observed 5 cases of pulmonary mycosis at the Jehanger Nursing Home, Poona, 1 caused by *Histoplasma capsulatum* (24-yr.-old female), 1 by *Aspergillus terreus* (11-yr.-old boy), and 3 by *Blastomyces* sp. (females of 52 and 24 and boy 16). Since the completion of this paper 2 more cases have been seen, 1 due to *B.* sp. and the other to an as yet unidentified fungus.

447. Coudert (J.), Despierres (G.), Saez (H.), & Hollard (J.). **Recherches sur la flore levuriforme bronchique en milieu sanatorial.** [Researches on the

bronchial, yeast-like flora present in a sanatorial environment.]—*Sem. Hôp. Paris*, **33**, 49–50, pp. 2978–2980, 1957.

From 151 specimens of sputa from sanatorium patients in France 133 strains of yeasts were isolated. No difference was noted in the distribution of the flora whether K[och's] B[acillus] was present or not, neither did antibiotic treatment with streptomycin, rimifon, or I.N.H. make any difference in this respect.

The organisms most commonly present were *Candida albicans* and *Geotrichum candidum*, which occurred in the sputa of 73 patients (48·4% of all those examined; 68·2% of all those whose sputa contained fungi). *Aspergillus* spp. occurred in only 7·47% of the cases, but *A. niger* and *A. fumigatus* occurred saprophytically in patients with large cavities. Reputedly pathogenic fungi of the genus *Candida* were the forms most frequently isolated (76%), saprophytes amounting only to 42·5%. None of the pathogenic fungi present could be considered to be responsible for the lesions present, all behaving as readily tolerated saprophytes.

448. Pfleger (L.) & Tirschek (H.). **Zur Problematik der Hautblastomykose.** [Concerning the problem of cutaneous blastomycosis.]—*Dermatologica, Basel*, **114**, 1, pp. 1–17, 9 fig., 1957. [English and French summaries.]

The authors report observations on a highly unusual case of cutaneous blastomycosis localized on the forehead and near the left ear of a 47-yr.-old male patient at the Universitätsklinik für Haut- und Geschlechtskrankheiten, Vienna. The organism isolated from the nodules was identified as *Sporobolomyces salmonicolor*, not previously recognized as a parasite, while cultures from the skin lesions produced *Torula herbarum*, which appeared to be saprophytic.

449. Merchant (R. K.), Louria (D. B.), Geisler (P. H.), Edgcomb (J. H.), & Utz (J. P.). **Fungal endocarditis: review of the literature and report of three cases.**—*Ann. intern. Med.*, **48**, 2, pp. 242–266, 4 fig., 1958. [Summary in Interlingua.] [*B.H.*, **33**, p. 663.]

The fungi most commonly implicated in the 31 cases of endocarditis previously reported were *Candida albicans* and *Histoplasma capsulatum*, while others included *Blastomyces dermatitidis*, *Coccidioides immitis*, *Aspergillus* spp., *Cryptococcus neoformans*, and *Mucor*. Three additional cases are presented from the Clinical Center, Bethesda, Maryland, 2 caused by *H. capsulatum* and 1 by *Coccidioides immitis*. In some patients endocarditis is not clinically evident, occurring as an apparently minor manifestation of overwhelming generalized mycotic infection, but in the majority the condition resembles subacute bacterial endocarditis.

450. Ciferri (R.). **Isolamento del Basidiobolus ranarum da feci umane.** [The isolation of *Basidiobolus ranarum* from human faeces.]—*Atti Ist. bot. Univ. Pavia*, Ser. 5, **15**, pp. 73–79, 1957. [28 refs. English summary.]

In 1955 *B. ranarum* was isolated during a routine examination from the faeces of a male patient in Milan suffering from persistent diarrhoea after a course of intensive treatment with antibiotics of the tetracycline type.

The author considers that from a morphological point of view *B. lacertae*, *B. hominis*, *B. intestinalis* (*Ichthyophonus intestinalis*), and *B. lotae* should all be referred to *B. ranarum*.

451. Van Uden (N.) & Carmo-Sousa (Lidia do). **Fungos do género Aspergillus no tracto intestinal de bovinos e equídios.** [Fungi of the genus *Aspergillus* in the intestinal tract of bovines and equines.]—*Bol. pecuar.*, **25**, 2, pp. 33–49, 7 fig., 1957. [English summary.]

Material obtained from the municipal abattoir at Lisbon and examined at the Dept of Mycology of the University yielded *Aspergillus* strains from the caecum in 252 cattle (and 252 equines) as follows: *A. fumigatus*, 62 from cattle (49 from

equines); *A. niger*, 13 (19); *A. terreus*, 36 (9); *A. nidulans*, 5 (19); *A. flavus*, 6 (5); *A. restrictus*, 1; *A. glaucus* var. *ruber*, 1; *A. glaucus* var. *chevalieri*, 1.

452. Van Uden (N.) & Carmo-Sousa (Lidia do). **Yeasts from the bovine caecum.**—*J. gen. Microbiol.*, **16**, 2, pp. 385–395, 2 fig., 1957.

From the caeca of 252 adult bovines 131 yeast strains were isolated at the University of Lisbon as follows: *Saccharomyces cerevisiae*, 12; *S. chevalieri*, 3; *S. drosophilarum*, 3; *S. fragilis*, 1; *Pichia bovis* sp. nov., 1; *P. membranaefaciens*, 3; *P. fermentans*, 3; *Cryptococcus diffluens*, 1; *Torulopsis glabrata*, 4; *Torulopsis* sp., 2; *Candida tropicalis*, 45; *C. parapsilosis*, 3; *C. krusei*, 33; *C. macedoniensis*, 1; *C. utilis*, 1; *C. bovina* sp. nov., 1; *Trichosporon cutaneum*, 5. *C. albicans* was not isolated, the apparent absence of which from the bovine intestinal tract may explain the rareness of oral and intestinal moniliasis in bovines. Full descriptions are given of the new spp.

453. Alés (J. M.), Canto (G.), García Puente (L. M.), Jiménez Díaz (C.), Lahoz (E.), Ortiz (F.), & Sastre (A.). **Papel etiológico de los hongos del aire en el asma bronquial.** [The etiological role of atmospheric fungi in bronchial asthma.]—*Rev. clín. esp.*, **64**, 3, pp. 143–152, 3 fig., 1 diag., 1 map, 1957.

The average numbers of fungal colonies per cu. m. of air in central Madrid and on the coast during Apr. 1955–Aug. 1956 were 478 and 515, respectively. *Cladosporium* spp. predominated (69·04 and 56·42%, respectively) [cf. **1**, No. 2085]. In both localities the incidence of fungi increased during the summer and fell in the winter, when *Penicillium* spp. were the most prevalent. In dwelling-houses, on the other hand, fungal contamination, chiefly by *P.* spp. (73·33 and 61·17%), was heaviest during the winter.

The significance of these findings is discussed in relation to the etiology of bronchial asthma.

454. Merksamer (D.) & Sherman (H.). **An evaluation of atmospheric mold spores as allergens in the New York metropolitan area; a seven-year study.**—*J. Allergy*, **29**, 1, pp. 60–71, 3 fig., 1958.

Slides were exposed in Durham shelters during Apr.–Nov. at 10 different stations in the New York metropolitan area during from 1 to 7 seasons and 55 fungus-sensitive patients (aged 3–49) were studied at the Allergy Clinic of the Jewish Hospital of Brooklyn. 62% of the patients had asthmatic symptoms and 82% had allergic rhinitis. Fungus sensitivity occurred alone in 29% and was associated with pollen sensitivity (usually ragweed) in 71% of the cases. Conjunctival symptoms were noticeably absent. All the patients showed positive reactions to intracutaneous tests with *Alternaria*, *Hormodendrum* (*Cladosporium*), yeast, *Aspergillus*, *Penicillium*, and *Helminthosporium*.

Conjunctival tests were positive in 62% of patients tested with *Alternaria* and 21% tested with *Cladosporium*. Positive conjunctival tests were also obtained with *Aspergillus* and yeast but not with mushroom. The eye tests, however, did not appear to be a reliable index of clinical sensitivity.

The fungus season began about the last week of June and ended about the 2nd week of Nov., and the authors found a correlation between the patients' seasonal symptoms and the *Alternaria* spore count. A correlation between *Cladosporium* counts and clinical symptoms was not apparent.

455. **J. T. Duncan, F.R.C.S.I., D.T.M.T.H.**—*Brit. med. J.*, **1**, 5084, pp. 1420–1421; 5085, p. 1485, 1958.

Obituary notices of Dr. J. T. Duncan, formerly Reader in Medical Mycology in the University of London, who gave most valuable help with the production of this *Review* from its first number, in 1943.